THE UNLEARNING OF EMOTION

A thesis
submitted in partial fulfilment
of the requirements for the degree
of
Master of Science in Psychology
in the
University of Canterbury
by
Joseph Laurence Owens

University of Canterbury
1991

Contents

"Nature is frugal in her operations, and will not be at the expense of a particular instinct to give us that knowledge which experience and habit will soon produce."

William James (1890)

Acknowledgements

Much gratitude to Ken Strongman for his seemingly inexhaustible tolerance and patience, and to Gavin Sullivan for many illuminating conversations.

Thanks of course to Paul Collett for his unfailing love, companionship, and criticism.

Abstract

This thesis examines emotional development from the viewpoint of personal evolution of self-hood as a function of the needs that develop in the course of acquisition of personal abilities through social interaction. Emotion is viewed as a form of behaviour, and its development synonymised with that of consciousness. The view of emotions (and consciousness) as being totally learned is examined, with regard to what the least innate aspects of consciousness might need to be present for an individual to be capable of developing self-hood and 'normal' emotionalism.

A simplified overview of classical philosophy is given, with specific reference to what is seen as the fundamental question by which Philosophy can be divided: is truth absolute, and if so, can it be experienced directly? A modified form of Hegelian Idealism (similar to that proposed by Marx) is used to outline the origins of the sociogenetic approach to the development of personality as characterised by the works of George Herbert Mead, and mirrored by the work of Lev Vygotsky.

In the second section, the concept of the least innate aspect of self-hood ('the minimum substrate') is examined in greater depth, and the problems of reflexivity in language and thought (which is seen as arising dialectically with language) described. The impossibility of complete precision in description by natural language is discussed, and how this relates to the concept of acquiring consciousness through social interaction. Imprecision in language is seen in reference to the imprecise and 'fuzzy' nature of 'natural categories', and chaos theory is used to provide the basis for a description of the interactions of individuals and society through language. The acquisition of consciousness through experience is given, using a behaviourist approach.

The third section examines the development of emotions within an individual's life-span through a modified form of the James-Lange model of emotion, where James' concept of innate reflexes is deconstructed and self-organization through negative-feedback is substituted. The minimum substrate for emotional development is put forward as identical with that for consciousness: the capacity for reflexive comparison. Successive replacement is suggested as the appropriate description for how emotions develop.

The final section is an explanation of why the thesis is written as it is, and expounds the virtues of unorthodoxy for the construction of theory in psychology. It examines the value of conflict, using the division between Radical Behaviourist and Radical Cognitivist approaches as an example. The thesis ends with a definition of emotion in a non-dualist framework.

Introduction

This thesis rests on a set of simple premises towards the final statement of belief that there is nothing innate about emotion. Further, that emotion is shaped by the experience of an individual in the course of their life and that it can be altered by deliberate conscious action. The apparently universal aspects of emotional behaviour are then ascribed to the universal factors present in people's environments, rather than as the consequence of genetic predetermination.

It is not a complex idea, but it is, I would argue, an unpopular one. Issues of innateness or otherwise of behaviour and thought have been argued over for millenia, and are ultimately unresolvable. It is empirically untestable, definitively (and ethically), so why examine it? I cannot hope to produce any proof one way or another on this issue, and I will not waste my time trying. Instead, what I hope to construct is a coherent narrative, outlining how it could be described, but not insisting that this is how it must be described. Ultimate proof is the exclusive province of God. Let him/her/it worry over it.

The idea is not complex, but the exposition is. Here is the end point: the origin of emotions can be described in a manner which does not require the recourse to innate mechanisms and/or instincts as a basis. Here is the middle: the development of emotions can be parallelled to the development of self-consciousness and cognition in general. Here is the beginning: a child sees the world, how it sees the world is a product of evolutionary development, what it sees is not. This seemingly trivial distinction is important, and stems from a fundamental dichotomy in philosophy, relating to the nature of the relationship between a person and the reality they inhabit and how it may be possible for one to

influence the other, and how the relationship can develop and change over time and with experience.

Some of the difficulties in the exposition of this apparently simple idea comes from the historical separation of what are seen to be functionally and structurally distinct aspects of human mental performance, that is perception, cognition and emotion. Rather than a unified whole of awareness, we perceive, think about what we perceive, and react emotionally to thoughts about our perceptions. This separation (described admittedly simplistically here) puts a separation between the 'outside world' of substance and the 'inside world' of thoughts, ideas and feelings, a separation that limits interaction and presupposes the possibility of independence of one from the other. There is a wall between a person and their world, perception represents the hole in that wall, the gap through which we peer at reality which stays on the other side. This is an easy enough view to accept, because it is the way we experience the world, we look at it, listen to it, reach for it. We experience ourselves as acting on the world, the personal experience of reality is demonstrably dualist.

The social construction of emotions (Harre, 1986) is entwined with the ideas underlying the personal development of individual consciousness. Both represent an opposition to strict naturalism and when emotion is seen not so much as a distinct set of forces or states separate from other forms of behaviour, other than in external social labelling, then emotion becomes a subset of behaviour (or rather action) in general. Following this through, the development of consciousness (self-awareness) synonymises, or more properly subsumes, the development of emotion. To clarify further, that which we understand in a socially defined way as being referred to in the use of the terms 'personality', 'identity', 'self awareness' are constituted by 'emotional' action. We are, as the individuals that

others know, how we act in the ways that are held to be emotional. How our personality is perceived by others is a reflection of our normal range of emotional acts. Emotions occur as acts relevant to the perception of the relationship between self-perception and prevailing environmental contingencies. Emotional action is intentional, and it is the manner in which, and the situations wherein, we act in a particular way (ie that which is socially held to be emotional) that defines the 'kind' of person we are. The pattern of emotion-type actions, stemming from our belief structure, defines our self, as others see us, and as we see ourselves acting. Given this line of argument, self-awareness, self-consciousness, "I", all of these terms are synonymous with the concept of emotional action. Thus, the social development of a sense of identity, a set of beliefs about the self, can be seen as the same as the social development of 'emotions'. This argument will be re-examined and elaborated in greater detail later, but this brief outline gives, I hope, an understanding of the rationale for examining emotion by examining consciousness.

It needs to be clarified that what is meant here by development is the development within an individual's life-span, rather than a species or evolutionary development. This is not to suggest that such does not occur, but it is not the immediate current focus of study. To deny the relevance of genetic inheritance is farcical, but to over-emphasise it at the expense of the role of environmental contingencies is, I feel, equally foolish.The question which can be asked however is: what do you need, what is the minimum substrate required for the presence/existence of consciousness (self awareness), and how much is explicable by a theory of social (and/or perceptual) learning? One of the principles that I will frequently refer to is that evolutionary pre-eminence (genetically speaking) is granted by virtue of adaptive advantage, and where that is absent, ie in the case where a

particular feature is not necessary, or of no greater value than any other, it confers no preferential status (that is, increased probability of genetic transmission) on its possessor. Where another means of transmission (eg social) can assume an equally successful (proadaptive) role then it can come to obviate the influence of differential selection pressure on somatic (ie genetic) development. The central idea to be extracted from this in terms of the social construction of consciousness/emotion is that the development of 'self' can be seen to proceed within and from the life experience of an individual rather than from the evolutionary history of a species. From this idea several central concepts/questions emerge: what is the function of consciousness (do we need it, what is its proadaptive character, if any?); what is the relationship between an individual and its environment such that this relationship allows/fosters the development of consciousness/self-awareness; what role does language play in this development/learning; and if consciousness is constructed, what is it constructed from, ie what is the least, the minimum that is required to be innately present (how rasa is the tabula); what do you need to 'know' to learn? It is my wish to explore these ideas by first outlining some of the opinions of the major exponents of these areas, and in particular those considered significant to the development of the concepts involved in the doctrine of the social construction of emotion (Harre 1986). Regrettably, it is inevitable that any such overview will be somewhat selective and probably over-simplified, and will omit some of the ideas of these thinkers. I shall endeavour to be as representative as possible.

Concepts to be discussed, then, fall into a few general categories: the relationship between subject and object (perceiver and perceived); the nature of knowledge (the meaning of meaning); ontological development (belief structure); the role of ontology in emotion; the nature of 'feeling',

from what may (and probably will) be describable as a behaviourist perspective; the nature of language and its place in the development of personality; and in so doing have outlined an action-based description of the nature of mind.

The later parts of this thesis will be concerned with elaborating these basic ideas into a description of emotional action, exemplifying these ideas in a description of emotional suppression as seen from a modified 'schema' - based description. The goal is to provide a description of emotional action which does not necessitate the positing of metaphysical or classical dualist entities to either provide motivation or to which to attribute causality, but instead to describe in terms of the function of emotion and its basis in rational action.

1 Dualism Versus Idealism

"There is nothing new under the sun"
- George Bernard Shaw, Man and Superman.

The Classical dichotomy in Philosophy

An overview as this will be, I shall make no reference to the pre-socratic philosophers (or indeed to a great number of philosophical workers) but instead follow just the major thinkers, and particularly those prototypic of holders of particular, somewhat polarised, opinions. In particular, I will briefly outline that line of reasoning which leads from Plato and Aristotle, through Descartes, Kant and Hegel through to Marx, G.H. Mead and L.S. Vygotsky and on to the ideas of constructionism as they are understood presently. The thinkers and ideas emerge to characterise and contrast the dichotomy (and the vast intermediate plane) that pervades and underpins

contemporary thought on the development and nature of consciousness and emotion.

The dichotomy to which I refer is that of opinion on the relative 'accessibility' of reality, that is, what is perceived in perception, is sensation merely transduction from reality to mind, do we perceive reality directly or is the nature of our experience removed and secondary? The question of the nature of reality is in many ways beyond the scope of this thesis and it is not my intention to examine it intensively and then provide new and tightly reasoned arguments for the adoption of one or other theoretical position. Rather, I wish to outline the lineage of certain tenets of the 'constructionist' approach and so point to the current incarnations of 'ancient' ideas as they are proposed in modern guise. It will be seen how the central idea of constructionism, that of reciprocal determinism of self and society, has its origins in this lingering argument over the nature of the relationship between subject and object, paralleling the disagreements of geneticists and environmentalists, and diversely spread politically in the application of the pragmatists and social behaviourists.

The role of the Soul

Plato - The realm of Forms

According to Socrates, and embellished by (and to become almost indistinguishable from) Plato, the ability to know, to learn, is synonymous with the 'recollection' of knowledge. This knowledge is possessed by the soul as it stands as an entity disembodied and immortal, part of a transcendent reality not available to the physical body. It is the soul that guides the physical body, makes it possible for the body to learn. To Socrates, the capacity to learn must exist prior to learning, and learning is

an active incorporation of what a person knows already with that which they experience. But current experience is coloured by prior experience, experience of the soul as it recognises elements of its transcendent existence as they are represented in the physical world. Learning is a process of recognition for the soul as it encounters previously familiar events. This concept stems from the belief still popular today in the immortality of the soul and in the reality of reincarnation (Kolenda, 1974). Plato took over this idea and expanded on it to create his own formulation of the process of knowing and learning with the Theory of Forms. Under this doctrine there are two distinct 'dimensions' of existence: that of the physical world, inhabited by the physical bodies of people in the course of individual incarnations; that of the Realm of Forms, immaterial and temporally transcendent. It is in the Realm of Forms that the soul resides. All objects that our physical bodies experience are only copies or 'shadows' of the true Forms, and our experience of 'reality' is thus secondary and mediated. The manner in which we recognise what a thing is is that our soul mediates for us with the realm of forms and tells us what it is, that is, recognises it by its similarity to the true Form.

"When the soul is thrust into a new body full of animal sensations and desire, it becomes completely confused and must adapt. This confusion explains why knowledge of the forms is not present in infants." Lombardo (1987)

Thus, the knowledge that our physical being acquires is merely a recollection of what our souls already know. Or more properly, the soul reacquires the physical knowledge by which it can make judgements about the correspondence between physical entities and the forms that give rise to them. The soul in each incarnation has to readapt to the distortions that occur as the direct reality of the Forms is warped by the interpretations of

the senses, which, moreover, have to deal with the manifestation of the Forms not just in one physical structure, but in a range of structures:

"Plato divides existence into a unified eternal realm of abstract forms and a diversified temporal flux of particulars...[he]...believed that certain knowledge could not be obtained through perception because perception reveals flux, ambiguity, and a vast array of unique particulars and differences." Lombardo (1987).

So, there is not one unique Form for each physical object, but rather each Form stands as a Universal (or prototype) from which there are a number of Particulars. Identification of any Particular is performed by the soul assessing the relative correspondence of a particular with the formal Universal it stems from. Our ability to categorize combined with the natural categories into which things fall is a consequence of our experience at this assessment. The Platonic model of experience is superbly dualist, not only are body and mind separate but the world itself is nothing but a twisted shadow of reality that our proper selves live in, striving to recognise the real by the signs hidden in the imperfect copies made by nature.

Aristotle - Direct Perception

In contrast to the the distinct Platonic/Socratic separation of mind and body Aristotle saw the perception of the physical world as being the perception of reality directly. There is no separate Realm of Forms, indeed, as Aristotle pointed out, reference to the Forms is circular, providing not a set of distinct ultimate entities by and of which knowledge exists but just a different set of individuals that again must be explained by reference. They do not stand alone as any sort of first or primal cause:

"...the Forms do not explain anything. They are just glorified individuals - perfect, heavenly individuals, it is true - but individuals nonetheless." Leahey (1987).

According to Aristotle, Universals do not have a distinct existence, but arise as a result of exploration, they are present in the physical world.

"Aristotle believed that universals exist in nature and we discover them...Universals are not separate Forms, nor are they just useful labels, for they exist as the essences of naturally real species of concrete objects." Leahey (1987)

Aristotle's idea of Universals in nature stems from his teleological conception of development, so that in its development an animal develops toward its Universal.

"The purpose of an acorn is to become an oak, to actualize itself as an oak." Leahey, (1987)

Or, as Lombardo puts it (from very much a Gibsonian perspective):

"Universals...are embodied within their actualizations. Universals are powers (potentialities) revealed through activity. 'The power or potential (eg the ability to move is the universal and the actualization (eg a specific movement) is the particular." Lombardo (1987)

Universals, then, are the 'perfect expression of the soul' as it shapes the body through the course of development. Aristotle uses the concept of the soul differently to Socrates/Plato, attempting to describe its relationship with the body in a more 'fundamental' way.

"The soul is inseparable from the body...there is only one material reality, body, but it has two aspects, physiological and mental. Soul is the form of the body and can no more be separated from its material embodiment than the form of the Venus de Milo can be separated from the marble it is made of...Aristotle put it this way in *De Anima*: That is why we can wholly dismiss as unnecessary the question whether the soul and the body are one: it is as meaningless to ask whether the wax and the shape given to it by the stamp are one..." ". Leahey (1987)

So the soul in a sense becomes itself (or actualizes itself) in its union with the body, neither <u>is</u> the other, neither is complete <u>without</u> the other.

"...each creature is defined by its soul,...[and]..., each individual is defined by his or her individual soul, what we would call the self." Leahey (1987)

The body, or rather the individual, develops toward a predetermined form over the course of its life (personal potentials become actualized). Aristotle is then a strict naturist, the environment providing materials and opportunities for actions, but not guidance or determination of potentials.

Modern form of the Platonic/Aristotelean division

It might seem that reference to the greeks is a little unnecessary. The purpose is to outline a view from which/by which to look at the nature of the relationship between individuals and their environment such that it can be used to justify a constructionist position. In the figures (and philosophies) of Plato and Aristotle we have the archetypal dichotomy of approaches, that which divides the focus of study on the capacities of the individual as opposed to the role of the environment. This dichotomy is represented today in extreme form by the viewpoints generally thought of as belonging to the radical cognitivists and the radical behaviourists.

The stereotypic radical cognitivist approach (as popularly conceived) would conceptualise the human mind as making order out of chaos by acting on representations of the world in some fashion through alterations in the neurochemical activity of the CNS. Thinking goes on inside the head, and the perceptual systems function as channels that pass on sense-data to be processed by the mechanisms of reason. The stimulation provided by the environment is insufficiently rich in structure and information to provide clues to its nature, and knowledge must have some a priori basis:

"...the knowledge obtained vastly transcends the evidence available in richness and complexity, and in each of these aspects, the fineness of detail and the precision of knowledge goes well beyond anything that can be explained on any imaginable functional grounds, such as the exigencies of communication." Chomsky, 1987.

The stereotypic radical behaviourists place the emphasis not so much on the actions of the mind as on the reactions of the body to events in the environment. Given certain environmental contingencies certain certain bodily actions may ensue. But, to use the pattern of reactions as evidence on which to construct a model of the workings of the mind is not plausible. To predict and control, but not to explain.

"*If you are willing to agree that 'meaning' is just a way of saying that out of all the ways an individual has of reacting to this object, at any one time he reacts in only one of these ways, then I find no quarrel with meaning.*" Watson, 1924.

It is on the relative degree of plausibility of explanation by reference to internal mental structures that really separates the cognitive and behaviourist approaches. While the behaviourist approach would not assert that people do not think, it would hold that theorising about thought should be limited to as simple an explanation as possible, one not reliant on hypothesised mental structures that are not directly available to testing. A strict behavioural approach would use the evidence of testing to seek out plausible hypotheses that relate behaviours to each other and to the contingent circumstances. A strict cognitive approach would use the evidence of testing to justify (or otherwise) hypotheses about the underlying structures that could produce such effects.

"...we understand talk about the mind to be talk about the brain at an abstract level at which, so we try to demonstrate, principles can be formulated that enter into successful and insightful explanation of linguistic (and other) phenomena that are provided by observation and experiment." Chomsky, 1987.

Neither extreme of position would deny the existence of mental structures, it is the direction of analysis and the question of proof that differentiates. Both conceptions have a fundamental dualism, recognising that there is a tangible barrier, a definite inside and outside to a person. In

either conception there is mind on the inside and environment on the outside and mind peers out at environment through the foggy lens of the senses. This position is clearly articulated by Plato, where the soul/mind uses the physical senses to gain information about the objects in the physical world so as to work out what they really are, that is, what Forms they are the physical 'shadow' of. Learning is a process of sophistication of the act of perception (by experience) to better recognise the correspondence between the particulars in the physical world and their 'parent' universals in the Realm of Forms. Similarly in the information processing approach, sense-data are processed and matched with abstracted prototypes to determine class/set membership. For example the premise that infants are innately capable of face recognition fits the platonic model nicely, requiring as it does that one be born with a prototypic face that one tries to find in one's surroundings. The aristotelean model may fit slightly better, where the universals (ie the category membership determining prototypes) are abstracted by experience with particulars, and innateness is not requisite. The issue of innateness is pivotal in this. If the capacities and the patterns of thought and action are innate and need only to be stimulated to develop, then a focus on the strictly mental is appropriate.

"The human mind, in short, somehow incorporates the principles of geometry, and experience only serves to bring them to the point where innate knowledge can be used." Chomsky, 1987.

If, on the other hand, they are learned, then the focus should be on the nature of the stimulation. The obvious answer, and the one with which people are content, is that it is a combination of the two, some things are learned and some you are born with the capacity for, and the question of nature versus nurture is not so terribly important so one should focus on something that can be studied successfully and avoid all this seemingly pointless theorizing. There is definitely merit in this approach. But even

while it accepts that there is interaction between person and environment it still maintains the implicit conceptualization of dualism in that irrespective of the source of the cognitive patterning, this patterning involves actions in the head of the actor. Even given that the environment influences the manner in which information is processed still retains the implicit belief that it is 'processing' that occurs. It still asserts that thought goes on inside the head and that structure and order are present in how the mind reacts to the world It still relies on representationalism and separation of a person from the reality they experience. It is still an approach that works in structures, not acts.

It must be emphasised that this is a caricature of the theses, and that there are many researchers that one might label as behaviourist in their leanings who fall closer to the cognitivist line. The radical, however, best demonstrates the extremes, and thus assists in delineating the variance. This is a simple demonstration of how easy it is to get led astray by simple statements of theory allegiance. The division into one or other school of thought occurs as a consequence of choosing a simplistic division. Historically, people are seldom as black and white in their opinions at the time as they might appear to be in retrospect. The highly selective nature of the concepts examined in this thesis reduces the likelihood of gross misinterpretation (I hope). In talking about this simplistic division in psychological opinion I wish to illustrate as starkly as I can the beliefs that seem to be fundamental to the social-learning perspective, and consequently, blend a lot of fine shading of opinion into abrupt borders of doctrine. I hope to outline the particulars of theoretical differences that lie between the apparent poles of opinion, to show that there are really only a few general differences, and maybe only one. The question of the availability of knowledge seems to lie at the heart of a great degree of

personal disagreement, and the course of thought on this matter can be shown in the writings of a selection of thinkers.

The contrast of the opinions of Aristotle and Plato highlights the central problem of human knowledge that still dogs much of Philosophy. This central problem of absoluteness in truth and its availability has appeared in a number of guises over the centuries.

Mind and Body

Descartes - Dualism

The difficulty in forming concepts is that as scale changes, the groupings that one forms, the way in which relations are made, alters. Taxonomic groupings, or any statement that something has a particular nature or is of a particular kind is very dependent on what your starting point, or central point of reference is.

> "His point was that, within the physical world, unity is invariably a matter of degree, depending as it must on spatial proximity, cohesion of parts, functional integration or causal connectedness, all of which are themselves a matter of degree." Lockwood (1989)

Descartes attempted to find, by a process of reason, where in nature there could be found some form of fundamental unity. Putting it in a very simplified form, Descartes asserted that the edges of things are hard to find, and that all matter can be seen to be divisible into other forms, smaller, or more fundamental, and that an objective perception of reality demanded that there be at least one single indivisible entity or fundamental truth, else nothing could be proved or be said to be truly known. Given that knowledge is known by reference, we require a cornerstone of experience, one fact we can rely on to provide a basis for our understanding. Descartes believed that it was possible to know things,

and set out to justify this belief. Descartes' assertion was that for any one person there exists only one unitary entity, and this is the individual human soul. This is the one fact that we know is true, and must be true, that I exist. I know that I exist because I know that I exist. Thus the famous statement: Cogito ergo sum, which translates as either: I think therefore I am, or alternatively: I think therefore I am one (ie unitary). This is the fundamental fact that one must accept, that one exists. It is an absolute requirement that one have faith in one's own existence, and it can be proved (so he said) simply by being aware of it. The logic or otherwise of this I do not wish to argue. What I want from this is to show how it places the great division back between perceiver and perceived. Descartes' view of experience puts the soul in some form of reality that transcends that of common matter (as Plato), and has the mind mediating between the reality outside the body, and viewed through the lenses of senses, with the point of influence between the soul and the mind through the pineal gland.

Experience is mediated

Descartes' model of the mind is much more detailed than this simple description outlines, but a detailed understanding is not necessary. The central point is that soul, mind, and body are distinct. Reality is a secondary experience for the soul, the soul provides the mind with the information with which to understand the world, but does not experience it itself. There is a set of information inside the head (or at least accessed through the head, God alone knows in what world the soul resides), and it allows the mind to translate the information that is passed through from the senses.

Kant - knowledge prior to reason

"The object of an idea, which comprises only the manner in which I am affected by the object, can be recognised by me only as it appears to me. All experience (empirical cognition), the inner not less than the outer, is nothing but the cognition of objects as they appear to us, not as they are (when considered by themselves)." Kant, "Anthropology" (1798).

Kant was of the opinion that while our consciousness develops through experience, it was a necessary fact that there is a distinct separation between perceiver and perceived, and that the act of perception, as an intervening process, created this. Further, he stated that to know we must have prior knowledge, which is a restatement of the fundamental reflexive dilemma in knowledge, how can we know what we know without knowing that we know what we know, and how do we know that? More simply: knowledge is referential, it exists in comparison, therefore no fact can stand alone, but where does this first fact come from? This is a restatement of the Aristotelean concept of primal cause, or the more familiar chicken-and-egg. Given this, Kant asserted that there must exist some prior knowledge, there must be a basis to learning so that we can have cognition.

"...Kant's solution to the issue of existence and basis of the categorical element in thought consisted basically of the delineation of what he considered to be the universal categories of reason. For Kant, the achievement of objective knowledge was a matter of obtaining 'necessary judgements', and he held that because perception alone could never yield such necessity, then the process of knowing implied the operation of such categories. Since the necessary categories were not arrived at through induction, he argued that they were simply 'innate to the understanding, a priori'. Furthermore...this transcendental element in thought was both a-historical and a-social; that it was an element shared by all men regardless of place and time." Goff, 1980.

The Categorical Imperative

Kant saw human cognition as driven by the categorical imperative, we partition reality according to the structures that we possess from birth and that are unaffected by the vagaries of society or social action. This is not to say that there is full knowledge present there that must simply be

awakened (as Plato would have it), but what exists is the basis of understanding in an a priori ability to reason. Kant would have us extracting structure from nature, not a structure that we impose on nature but one (as Aristotle) that we find there. While the ability to categorise is prior, the categories themselves are not. As interpreted by Kolenda, 1974:

"Mind makes nature possible; that is, nature as an organized process of experience appears to us only as a consequence of the logical contribution that the mind makes to that process. this does not mean that mind *makes* nature; it only means that reality appears to us in a certain guise and that we can discover the conditions under which this reality is intelligible."

This discovery is a process that develops through the course of child development:

"The observation that a child does neither weep nor smile until after it is three months old appears to be based on the development of certain notions of offense and injustice, which point toward reason. In this period, when his eyes begin to follow bright objects which are held before him, we have the crude beginnings of a process of broadening perceptions (the apprehensions of sensory awareness) into a recognition of objects of the senses, that is, of experience." Kant, "Anthropology" (1798).

The "apprehensions of sensory awareness" are the workings of the fledgeling mind. Kant had a concept of the self that was self-referential, while the mind (the ability to categorise) is a unified whole (as Descartes), the self is a creation of the experience that the mind has in interaction with nature (Kolenda,1974). The child's self is not the same as the child's mind, the mind is prior to experience, and constitutes the child's capacities to reason, the self is the product of the child's observations and memories of its own actions (including cognition) and their outcomes.

"It is noteworthy, however, that the child who already speaks fairly well begins to use the pronoun *I* rather late (perhaps after a year), in the meantime speaking of himself in the third person...A light seems to dawn upon him when he begins speaking in the first person. From that day on he will never again revert to the third person. At first the child merely *felt* himself, now he *thinks* himself." Kant, "Anthropology" (1798).

The child's developmental path takes it from an objective view of events happening, to a subjective view of itself as an actor. Reason may be a given, but the sense of self is not.

"Kant...said that in the process of becoming aware of the world, the self also becomes aware of itself." Kolenda, (1974)

Kant also saw cognitive ability refining itself through the interchange of ideas between people, and that without this interchange there is no real progress:

"Because sounds are nothing in themselves or at any rate not objects, but merely signs of inner feelings, they are the best means of expressing concepts. People born deaf, who must therefore remain speechless, can never arrive at anything more than an analogue of reason." Kant, (1798).

So where are we now? In the course of progression from Plato to Kant we have the separation of mind from reality made progressively smaller, the degree of in-builtness becomes less and the role of personal experience in the creation of the individual rises in stature as science comes to demystify and explain and the quest to understand and to control the forces of nature and of ourselves demands that we leave less to the foggy realms of the supernatural and give explanation in terms of the simple and the tangible. But still at basis we have the need we cannot escape to have knowledge present at birth, as represented by the prior abilities of reason. We do have the beginnings of the suggestion that social interaction has a role in the development of reason but remain with the germ of thought as a primary given, no matter how small or rudimentary. And while there is an interaction between the mind and the world, it is both mediated and indirect:

"Sense is the faculty of intuition in the presence of an object. Imagination is intuition without the presence of the object. The senses, however, are in turn divided into outer and inner (sensus internus). The outer sense is

where the human body is affected by physical things. The inner sense is where the human body is affected by the mind." Kant, (1798).

Hegel - radical Idealism

The philosophy of Hegel represents a weighty and complex body of work in the history of western thought. Its breadth and the often tortuous nature of his writing have provided material for a great deal of argument and interpretation. Hegel's ideas are difficult to understand, so I beg indulgence for the inclusion of long interpretative (but hopefully clarifying) quotations, the extensive re-writing of which would probably not contribute a great deal though I shall justify their inclusion by expansion.

Fortunately, it is only my wish to examine a small, but crucial part of Hegel's philosophy, his description of the nature of the relationship between a person and the world she inhabits. For the relationship between Hegel's work and a description of the development of Emotions I will make use more of Marx's revision of Hegel's basic concepts.

Hegel's goal, in part, was to resolve the millenia-old dispute over the 'mind-body problem'. As previously described, this problem hinges on the relationship between the soul, seen as that immortal part of every human being continuous beyond death, and the physical world. Being immortal, mainstream philosophical opinion at that time had it that it was of necessity immaterial and so not subject to natural laws, and therefore, it was asked, how can an immaterial entity produce physical effects? Opinion then differed on the degree of involvement of the soul with the body, were they separate but communicating, did the body produce the mind, or vice versa, or did the soul exist at all? Here we refer back to the ideas of Plato and Aristotle, and Descartes and his hypothesized action of

the pituitary gland as an intermediary between the temporal and the immortal.

One important implication for adopting a dualist approach a la Descartes is that the body begins to be seen as a 'vehicle' in which the soul resides, where the workings of reason are then a function of the presence of the soul and not of the physical architecture of the body. Further to this, as mentioned before, it was held that nothing comes from nothing, so it is necessary to have a core of 'knowledge' or reasoning power with which you are born, by which to acquire full understanding. Kant referred to this as a priori categorisation, by which experience is 'partitioned'. Hegel himself followed on from the work of Kant, but significantly reformulated it. In all of these conceptualizations, the site of this innate knowledge of the world and the things in it is the soul, and between the apprehension by the soul of the thing-in-itself come the material senses. Hence there is a division between a person and the reality they inhabit, a separation that cannot be bridged. A person experiences only a representation, a shadow of things in the real world, not the things themselves. Phenomenal experience is then no more than a particularly vivid illusion. Berkeley took up this idea to construct the extremest of monist relativist positions, postulating that no real world of material substance exists at all, but rather that mental phenomena, as apparent products of the action of the senses, were simply creations of the mind of God. All reality is divine reality, there is no 'real world' separate from the perceiver. Objectivity is a con (Kolenda, 1974).

The Dialectic

Hegel's attempted solution to the problem of the apparent separation of the subjective perceiver from objective reality was to outline an extreme

idealism, a relationship between thought and the object of thought, between the Subject and the Object, which he termed the Dialectic.

The basic premise of the Dialectic, simply put, is that consciousness is not static, but exists as the product of tension between thought (the Subject) and its object. For Hegel, the 'Idea' was the nature of the comprehension of reality. Hegel saw the perceiver and the perceived to have their interaction in the Idea of the act of perception. While each had an independent existence (thus denying Berkelian relativism) both were unified:

"Life is at first a sequence of determinate 'objective' conditions - objective, because the living subject finds them outside of itself, limiting its free realization. The process of life, however, consists in continuously drawing these external conditions into the enduring unity of the subject. The living being manifests itself as a self by mastering and annexing the manifold of determinate conditions it finds, and by bringing all that is opposed to itself in harmony with itself. The unity of life, therefore, is not an immediate and 'natural' one, but the result of a constant active overcoming of everything that stands against it. It is a unity that prevails only as the result of a process of 'mediation' (*vermittlung*) between the living subject as it is and its objective conditions. The mediation is the proper function of the living self as an actual subject, and at the same time it *makes* the living self as an actual subject...speculative thinking conceives 'the intellectual and material world' not as a totality of fixed and stable relations, but 'as a becoming, and its being as a product and a producing'" Marcuse (1941)

Marcuse here interprets Hegel's conception of consciousness as an activity, a process rather than a fixed entity. While objective reality exists, consciousness is an effect of the attempt to resolve the difference between objective reality and the awareness of it, or rather, the sensitivity to it.

Hegel saw the essential nature of the dialectical relationship as inherent opposition and instability:

"...Hegel believes in the unity or identity of opposites; indeed the unity of opposites plays such an important part in the evolution, in the 'dialectical' progress [of society], that we can describe these two Heraclitean ideas, the

war of opposites, and their unity or identity, as the main idea of Hegel's dialectics." Popper (1945).

Ideas are defined by what they are not, and in negativity. Definition is always relative, said Hegel, things are defined referentially, and this is a reflection of the dynamic nature of Ideas. Understanding is a successive subsumption of experience into consciousness. It is a continual, on-going, redefinition through change brought about by action. This action comprises the basis of perception. A person, when born, is in a state of 'antagonism' with their world, an antagonism that is a product of objective distinction between their nascent self as Subject, and the objective conditions of the world, the source of the Subject, as Objects. The act of perception is an act of unification through mutual redefinition that alters both the self of the individual that perceives, and the object that is perceived through its role in the perceptual 'dyad'. The redefinition of the self as it interacts with the objective entities of the world is then an aspect of direct interaction with reality. Hegel tries to unify Object and Subject by standing back from them, and positing a relation between them as members of the set of 'Notion' or 'Idea'. Subject and Object are then just different aspects of the Idea that come into existence when no particular observational stance is taken. Ideas exist in an unstable balance, with each Idea holding the seeds of its own inevitable destruction, or rather subsumption, into a further Idea in the very fact of its existence as Subject and Object. Change is inevitable and omnipresent. All things exist in a continual state of flux, a dynamism that is an essential consequence of the instability of nature. This change is progressive, and leads to the arisal and determination of the form of individual consciousness through the progressive dialectical transformation of the 'social idea' of the self, while at the same time the society in which that consciousness takes part is also transformed. Hegel's conception of reality is of successive becoming,

rather than of a constant nature. Any constancy is seen only in Ideas, not elements of Ideas. A person's consciousness comes into being by successive 'destructions' and incorporations of the initial ideal relationships that exist between it and the world, each destruction bringing about the formation of a new Idea, with its own tensions manifested in action. The process of development of individual consciousness is thus a historical one, reflecting, but not identical with, the society of which it partakes. This partaking of society is what Marcuse referred to (see above) as "mediation", but which can be re-expressed as 'action'. While there is identity between individual and society, this identity exists as a product of social action, not as a strict determination by society of the structure of the individual, but as they interact in the Idea of the society, and in its material manifestations:

"The evolution of human nature proceeds in terms of the interaction between man and nature and the technology and social relations of production which mediate that process. In this sense the potentiality of human nature may be regarded as a function of the means and relations of production." Hyppolite. (1969)

But society itself, as a product of the interaction of each individual's consciousness, has a dialectical nature, revealing its essential nature in change:

"Hegel asserted that Kant had analysed reason as if it were something static; that he forgot that mankind develops, and with it, our social heritage. But what we are pleased to call our own reason is nothing but the product of this social heritage, of the historical development of the social group in which we live, the nation. This development proceeds dialectically, that is to say, in a three-beat rhythm. First a thesis is proferred; but it will produce criticism; it will be contradicted by opponents who will assert its opposite, an antithesis; and in the conflict of these views, a synthesis is attained, that is to say, a kind of unity of the opposites, a compromise or a reconciliation on a higher level. The synthesis absorbs, as it were, the two original opposite positions, by superseding them; it reduces them to components of itself, thereby negating, elevating and preserving them. And once the synthesis has been established, the whole

process can repeat itself on the higher level that has now been reached. " Popper (1945)

Popper is here discussing Hegel's concept of the dialectical development of society, rather than individuals, of the progression of socially-institutionalised beliefs and stated ideas, which is analogous, on a slightly different scale, to the development of each individual consciousness. There is a form of loosely 'fractal' relationship between the nature of society as a whole and that of the individuals in it, where the overall shape is reasserted in the structure of the components.

The hegelian view of reality is of a cast dynamic whole, comprised of a flickering succession of events. Invariance in this seeming chaos occurs in Ideas, and Ideas exist in action, social action. An action that has its basis in the objective material existence of the elements of society and the objective material existence of the individual members of society as they exist in dialectical Ideas. 'Action' is of course social action, and within this comes language, the fundamental action in society, the essence of dialectical unity:

"Language is the medium in which the first integration between subject and object takes place. It is also the first actual community (Allgemeinheit), in the sense that it is objective and shared by all individuals. On the other hand, language is the first medium of individuation, for through it the individual obtains mastery over the objects he knows and names. A man is able to stake out his sphere of influence and keep others from it only when he knows his world, is conscious of his needs and powers, and communicates this knowledge to others. Language is thus also the first lever of appropriation.

Language, then, makes it possible for an individual to take a conscious stand against his fellows and to assert his needs and desires against those of the other individuals." Marcuse (1941).

The "conscious stand against his fellows" as referred to above can be seen as the formation of the self, or the conscious awareness of individual

existence, formed in the Idea of social action, in the awareness of the phenomenal distinction that divides the unity into the opposites:

"...the real object is constituted by the (intellectual) activity of the subject...[which]...discovers that it itself stands 'behind' the objects, that the world becomes real only by force of the comprehending power of consciousness." Marcuse (1941).

The self, the subject of conscious awareness, comes into being through social action, and as such is society for itself and by itself. The self exists as an individual in its own right, and as an individual as other individuals are, as a consequence of the referential nature of reality:

"The idea of a universal I is an abomination to common sense, though everyday language makes constant use of it. When I say 'I' see, hear, and so on, I put everybody in my place, substitute any other I for my individual I. 'When I say "I", "this individual", I say quite generally "all I's", everyone is "I", this individual "I"'.

Sense-experience thus discovers that truth lies neither with its particular object nor with the individual I. The truth is the result of a double process of negation, namely, (1) the negation of the 'per se' existence of the object, and (2) the negation of the individual I with the shifting of the truth to the universal I. Objectivity is thus twice 'mediated' or constructed by consciousness and henceforward remains tied to consciousness. The development of the objective world is throughout interwoven in the development of consciousness." Marcuse (1941).

But it is important to remember that the statement: "Objectivity is thus twice 'mediated' or constructed by consciousness..." as Marcuse expounds Hegel, does not imply strict relativism, though admittedly it does sound like it. The mediation of objectivity refers to the Idea that links consciousness and objectivity in the act of perception. Specifically here it is the self, the "I" that has its individual (subject) existence separate from but intertwined with the social (objective) existence defined in the process of social action:

"Perception, like sense-experience, first gathers the truth from the object. But, like sense-experience also, it discovers that the subject itself constitutes the objectivity of the thing...the analysis of perception goes beyond the point reached in the analysis of sense-experience...The unity of

the thing is not only determined but constituted by its relation to other things, and its thinghood consists in this very relation." Marcuse (1941).

Hegel is confusing, and his ideas often seem contradictory or flatly unintelligible. "The Unity of Opposites" seems like one of "six impossible things before breakfast", and the idealism seems more akin to spiritualism than any form appropriable by materialism. Yet, as a description of the development and means of constitution of current states of consciousness it has great merit. What is/is in consciousness at any time is a function of the 'meeting' of 'external reality' and the past history of the individual, and each successive encounter with an 'event' does involve a redefinition of 'current contents'.

"What the romantic idealists, and Hegel in particular, were saying, was that the world evolves, that reality itself is in a process of evolution." Mead, 1956.

On-going experience, learning, is subsumptive. The actions of learning involve things such as accommodation, incorporation, taking in and reforming, producing scripts and narratives, involving current object states with current and past subject states.

Hegel's conceptualization strives to overcome dualism by its postulation of higher Ideal relationships, but it is Marx's contribution that grounds the Dialectic firmly in the material world of people.

Marx - Consciousness as History

"All that is solid melts into the air, all that is holy is profaned, and man is at last compelled to face with sober senses his real conditions of life, and his relations with his kind." Marx, Communist Manifesto, (1849)

Marx's belief was that Hegel was in many ways correct in his formulation of the subject/object relation, but that it should not be seen in terms of an idealist philosophy, but rather, in a materialist. I will, at this point, give a

very brief and schematic outline of Marx's economic theory of history, to show the materialist transformation of Hegel. Marx provides the cross-over point, where the detached intellectualism of Hegel was reworked into a form that had appropriateness, a simple grounding in the common-place that provides a model for a plausible real-world mechanism for the inter-relationship between individual and society.

Marx was influenced by the form of the prevailing social structure of his time with its marked social divisions and inequalities, and of the transformation of society as he saw it through a pattern consistent with a historical (dialectical) progression. This progression was occurring as an inevitable function of tensions inherent in social structure:

"The bourgeoise cannot exist without constantly revolutionizing the instruments of production, and thereby the relations of production, and with them the whole relations of society...Constant revolutionizing of production, uninterrupted disturbance of all social conditions, everlasting uncertainty and agitation distinguish the bourgeois epoch from all earlier ones..." Marx (Communist Manifesto, 1849).

Change results in the need for more change, production and consumption feed on each other to force the march of social and technological progression. This progression has lead through successive patterns of class stratification from independent village existence, to feudalism, to capitalism which, with its sharply divided dichotomy into bourgeois and proletarian classes, must then produce the final form of society in communism. Progression through these stages involves, and is fuelled by, an increasing alienation of the worker from the product of his actions and the increasing stratification and formation of stark divisions within society. Alongside this is the inevitable concentration of control of the means of production in the hands of a few. Increase in industrialisation means a subsequent increase in the alienation of the worker, and every increase in productivity, according to Marx, meant less of a share in the

wealth of society, the product of labour, for the worker. Because the worker does not share in the profit of her labour directly, but instead is on a constant wage, then any increase in output has only the effect of decreasing the value of the work done to produce any object. Increase in production means the decrease of the value of labour. Industrialisation's increase also results in an increase in control of the means of production by the rising industrial class, the bourgeoise, the previous merchant class. This class comes to dominate over the earlier feudal masters by economic control, and as time progresses the structure of society becomes simplified with the submergence of the titled classes, the "feudal nobility", by the bourgeoise until only only two major social divisions exist. It is when the proletariat becomes aware of its coherent existence and strength, and unifies in unionism that it will overthrow the bourgeois industrialist class and the final social structure of communism will appear, with only a single class:

"The bourgeois mode of production is the last antagonistic form of the social process of production-antagonistic not in the sense of individual antagonism but of an antagonism that emanates from the individual's social conditions of existence...The prehistory of human society accordingly closes with this social formation." Marx (1859).

Social Consciousness

It was Marx's belief that divisions into social classes involves a division of consciousness.

"It is not the consciousness of men [sic] that determines their existence, but their social existence that determines their consciousness." Marx (1859).

The changes that occur are inherent in the nature of relations, and do not require an alteration in the subjective nature of the people involved. Society comes to be seen as an entity in itself, capable of having properties that are unique to it. As a whole, it has individual life. While consisting of

individuals it exists independently of any one individual, but dependent on all. People's belief in the existence of a real structure, called society, in which they have a place, and which determines to a great extent the pattern of their lives, functions as a self-fulfilling prophecy. People's actions shape society, but their beliefs in how they should act (according to their perceived social position, and their socially-derived goals) shape their actions.

Consciousness as Social Practice

Like Hegel, Marx saw consciousness as a function of a dialectical interaction between individuals and society:

"In the social production of their existence, men inevitably enter into definite relations, which are independent of their will, namely relations of production appropriate to a given stage in the development of their material forces of production" Marx (1859).

But rather than seeing the actualisation of these relations in the Idea of action, as Hegel, Marx wanted to see it in economic terms, in terms of real values of concrete physical objects and human endeavour directly as they exist as tangible social entities, as Suchting (1986) put it:

"Humankind's primary relation to the world is an *active* one, specifically the relation involved in *labour*. In transforming the world through labour, two things happen simultaneously. Firstly, the object of labour is changed, in accordance with certain human aims, into a new sort of object - a 'humanised' object. But, secondly, the subject of labour, the labourer, develops new sensory capacities adequate to the reception of the new objective characteristics thus brought forth - the subject becomes 'naturalised'. This suggests that what is of primary significance is not the 'subject' or the 'object' but the *practical relation by which the real object is transformed* in labour....[in this way]...the 'subjective', which is the factor of the executor of the practice, whose sensory capacities are determined by the practice, and the 'objective', which is the factor determined by the real object...are not constituted *prior* to the practice, but are constituted *within* practice as moments of it."

Practice (praxis) now comes to dominate over Ideas. Action in a social context is not conceptual as can be construed from Hegel, it is material,

and its effects are material and are embodied in the 'value of labour' and the concept of capital.

Marx's ideas are, however, of relevance to more than just economic theory. His description of perceptual development through practice (praxis) and of the class determination of consciousness can be seen reflected in the basic tenets of divisions in sociological and psychological thought. This appears most overtly in the post-revolutionary soviet psychology, in workers such as Leontiev, Luria, Pavlov, and most particularly L.S. Vygotsky (Valsiner, 1988). Less overtly it can be seen in an altered form in the American psychologists of the 'Chicago School', such as James, Dewey, and Mead, and later in the work of J.J. and E.J. Gibson. It would be fallacious, however, to refer sweepingly to these thinkers as neo-marxists, or neo-hegelians, simply applying the ideas of these two in more contemporary terminology. It is more appropriate, perhaps, to see a parallelism, or perhaps the inevitable re-emergence of an idea that has some claim to truth. The theories of Mead and Vygotsky for example, have been compared by a number of people, who do not suggest that there was interaction between them, merely a common insight given the same observations and a similar philosophical history. This particular parallel I shall return to in more detail later.

Sociogenesis

"The self is not contained in any moment or any place, but it is only in the intersection of moment and place that the self might, for a moment, be seen vanishing through a door, which disappears at once." Jeanette Winterson, "Sexing the Cherry".

James Mark Baldwin

According to Valsiner and Van der Veer (1989) the 'sociogenetic' approach to cognitive development can be illustrated by an analysis of the the ideas of Josia Royce and James Mark Baldwin as they impact on the work of G.H.

Mead and L.S. Vygotsky . They take this idea and use it to construct a simple explanatory diagram which attempts to capture the philosophical relationships in graphic form. I have appropriated this diagram below (see figure 1).

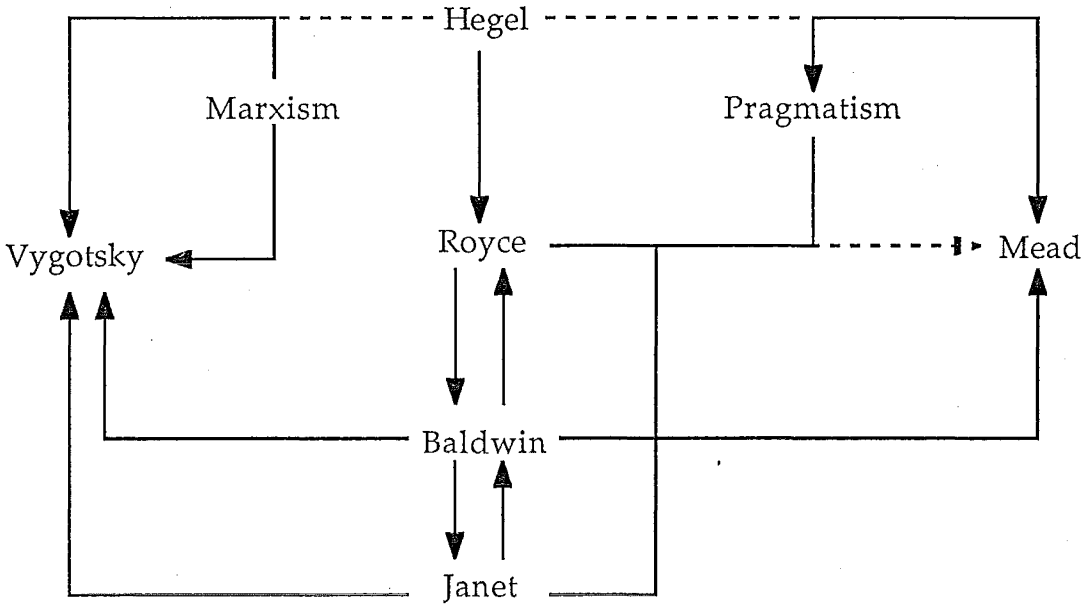

Figure 1. A schematic view of the intellectual connections between major representatives of the sociogenetic perspective and their intellectual background.
Taken from Valsiner & Van der Veer, 1988.

Valsiner and Van der Veer describe the sociogenetic view as based on two basic postulates:

"First, the ontological postulate: *all human cognition is social in its nature*. By that it is meant that adult human thinking processes are interdependent with the social discourse of the given society. Second, the developmental postulate: *the social nature of human cognition emerges in the process of internalization of external social experiences by individuals in the process of socialization.*"

This is, I think, fairly self-explanatory. They then go on to outline what they see as the major contribution of Royce and Baldwin to the later syntheses of Mead and Vygotsky.

From the diagram it can be seen that Royce had direct influence on Mead, and also on Baldwin with whom he was closely connected. Baldwin is credited with a great deal of influence on the work of Vygotsky, and Baldwin himself was influenced in the formation of his basic ideas about internalization processes by the french psychoanalyst Pierre Janet, particularly his concept of 'suggestion'[1] to formulate his own ideas on imitation where the perception of the actions of others can be compared to the action of oneself, and modified according to information about the results of action:

"Baldwin's description of the process of persistent imitation involves the use of the feedback principle...in a process where successive motor imitations of the model are compared with their previous traces in the nervous system...Human personality develops with the help of 'personality-suggestion' - by the suggestive models of activity by the 'social others'...these models provide the 'input material', from which the developing children can learn to assemble their own, novel patterns of personality..." Valsiner and Van der Veer, 1989.

So in Baldwin we have the appearance of the idea of the 'otherness' of self as it develops in the process of acquisition of social skills by active imitation. Of primacy to Baldwin's ideas on development is the construction in, and by, the child of an awareness of phenomenal dualism, an appreciation that there is a functional distinction in action and perception, that there is an inside and an outside to experience. He conceived of two forms of this distinction, one of body and mind, and building on this, of subject and object:

---

[1]"...a motor reaction brought about by language or perception." Baldwin, 1895, cited in Valsiner and Van der Veer, 1988

"The inner world of representation is contrasted with the outer world of sense, and only gradually does the inner develop into a locus of control over and against the outer. When the child is able to represent the inner as having its own control and thus separate from the outer, he has begun to develop the mind-body dualism which later on, through a further development of the relation between representation and representational object, will lend to the subject-object dualism." Lee, 1982.

The child, according to Baldwin, first appreciates with on-going experience that there is a class of action that is 'personal' to herself, that is in its nature different to the directly observable, and begins to form an implicit distinction between the 'mental' and the 'physical' classes of action:

"The hardening up of the inner-outer dualism through the development of play and experimental objects leads up to the mind-body dualism...[which]...arises through the child's differentiation between the way inner and outer mental objects persist...Outer objects all share the quality of external persistence, of control by something external. Inner objects are characterised by a sameness of inner control." Lee, 1982.

So where the child begins as a phenomenal monist egocentric, making no distinction between 'objects of imagination' and 'objects of perception'[2] so that everything is a figment of the imagination, time reveals the difference. This difference can be simply stated as a distinction by virtue of intention, as, other than in hallucinatory states, one *intends* to imagine, whereas the occurrence of the objects of 'external perceptions' is not so subject to personal volition[3]. The child learns that some things are under her control and some aren't, and it is the extension of this belief about herself to other people as a consequence of active imitation that leads to the arisal of the personal self:

---

[2]Of course, it can be argued that imaginary events are perceived, resulting as they do from physical processes of memorial recombination.

[3]However, this is not to suggest that we do not intend to perceive, but rather that what we perceive is not under our control. I can choose to look, I cannot choose what it is I see, I can choose what to listen to, but not what I hear.

"...when children imitate the behaviour of someone else, they discover that in the other person whom they perceived as merely outer before the imitation, there is a whole range of psychic events, some of which they themselves might have previously felt." Lee, 1982.

Baldwin emphasised the importance of role-playing in the development of self. By taking on the actions of others to oneself one becomes the other, so that by adopting the surface appearance (the other person's behaviours), and making the connection between the surface appearance of oneself (the 'body') and of the inner actions of oneself (the 'mind'), and applying this to the surface appearance of others, the child appreciates the divided existence that other people also share with her:

"Young people first imitate the novel and interesting behaviour of others, learning to transform that behaviour into something they can do for themselves. In so doing, they create and experience the feelings that accompany the imitated behaviour. When they see others perform similar actions they "eject" these feelings and the accompanying intentional states upon the other, reading into the other via this "empathic transference" what they themselves feel." Lee, 1982.

It is not only a monodirectional process of interpretation that is responsible, for, while the child is forming associations between external actions and internal intentional states, so too the adults in her environment construe her actions in terms of the social significance that such actions would have for them. Their responses to her actions guide and colour her developing cognitive structures and provide her with a range of socially appropriate actions, so that the child can function as a social actor before any explicit understanding of social significance is present:

"The self emerges out of social interaction. In their interactions with their child, parents are constantly interpreting the child's goal-directed behaviour in terms of the ideals they have for the child. By empathically or non-empathically responding to the child, they segment, create and indicate which of the child's activities mean more emotionally and are important...[and the]...feedback necessary to establish and confirm its cognitive strategies, but also, by the emotional quality of their interactions,

determining how it feels about how it represents itself and others." Lee, 1982.

George Herbert Mead

"What I want to make evident is that the development, the development of mind as well as institutions is a social evolution...society in its organisation is a form, a specie [sic] that has developed;..." Mead, 1956.

Pragmatism

Mead's approach arose from within the influence of the school of thought in American psychology, philosophy and sociology in the beginning of this century collectively termed Pragmatism. Pragmatism arose from somewhat hegelian roots through the work of such people as John Dewey, William James, James Mark Baldwin, and Charles Horton Cooley.

The pragmatist ideology had some similarities to that of behaviourism, reacting against cartesian dualism and the mentalism of introspection, seeking to see people in context, as functioning in a social setting. Pragmatism saw the self and society as forming together a "seamless web...linked in an indissoluble unity..." (Coser, 1977) following from the ideas of Cooley. Self and society were seen as continuous and intertwined:

" A separate individual is an abstraction unknown to experience, and so likewise is society when regarded as something apart from individuals..."Society" and "individuals" do not denote denote separable phenomena, but are simple collective and distributive aspects of the same thing..." Cooley, 1964 (cited in Coser, 1977).

Pragmatism, while seeing some of the source of behaviour to be found in the environment, did not reject consciousness as an entity as did the radical behaviourism of Watson, but instead wished to see where it arose from, where the origins of consciousness could be found in the world at large, and to use the observation of behaviour to provide means to describe the processes of the formation of consciousness (Baldwin, 1985).

Mead wanted to work from the 'outside to the inside', viewing the appropriate goal of behaviourism as:

"...[looking]...first at empirical data on biology, psychology and sociology, and then try to determine how these external variables give rise to the inner experiences of cognition and emotion...Behaviourism traces mind and other inner experiences back to biosocial causes." Mead, 1934 (in Baldwin, 1985).

Pragmatists such as Dewey and Mead wished to reform society, to put the work of scholars such as sociologists to real practical use, and the work of Mead is thus coloured by his wish to provide a description of consciousness in a general social context, and to demonstrate the significance of society for the development of the individual and thus that social reform was a worthwhile endeavour.

Within pragmatism the dominant view (in a general sense) of the formation of consciousness was that of an interactionist, evolutionary approach that emphasised the functional role of the mind for a person as an actor in the human environment of society:

"Self is, as we have so often seen, *activity*. It is not something *which* acts; it is activity. Through its activity, the soul is; and feeling is the becoming conscious of its own being." Dewey, 1891.

Thus, the social significance of action was stressed in theory, and of persons as shapers of behaviour to meet socially-determined ideals and self-perceptions. Communication, language and interaction were seen as determinants of personality and identity, as people consensually form the idea of what it is to be a person:

"...evolution...[of institutions]...takes place in human society, but here it takes place...not through the development of physiological functions on the part of the separate individuals. It takes place through what has been referred to...as a universe of discourse. That is, it takes place through communication and participation on the part of individuals in common activities. It takes place through the development of significant symbols." Mead (1956).

So an individual is only thus because of their relationship to the forms of society, a relationship mediated by the structure of language:

"No individual can realize himself in impersonal relations...He can truly develop himself only in self-conscious activity, in personality, and that is impossible without relations to other persons." Dewey, 1891.

Cooley

Cooley's original conception of the individual's relationship to society endeavoured to oppose the cartesian-type separation between thought and the objects of thought, and thus stressed the involvement of consciousness in, or rather as, the substance of society:

"...for Cooley,...society was uniquely a mental phenomenon. "The imaginations people have of one another...are the solid facts of society...society...is a relation among personal ideas." ." Coser, 1977.

However, it was felt by Mead that Cooley went too far, and over-emphasised the subjective element in society and thus undermined the necessary objective reality of society as embodied in practice and social symbolism (Coser, 1977).

Internalization

Mead followed from Baldwin in viewing the development of personality as a process of internalization, but for Mead it was internalization of the processes of interaction in the form of speech that was the substance of the self. It is by taking on the linguistically-mediated relationship we have with others to ourselves, that we as individuals come into being:

"...the human self arises through its ability to take the attitude of the group to which he belongs - because he can talk to himself in terms of the community to which he belongs and lay upon himself the responsibilities that belong to the community...The structure of society lies in...social habits, and only insofar as we can take these social habits into ourselves can we become selves." Mead (1965).

Thus it is not so much internalization as the imitation of the actions of others, but of internalization of cooperative gestures.

The role of Internal Monologue

Talking to oneself is very much how Mead saw the self as existing, as an entity composed of self-spoken attitudes, attitudes that are expressed as if they were to someone else, the 'generalized other' that one must become for oneself to be oneself.

"The 'I' - 'me' relationships in Mead's thought serve as the mechanism by which the person relates to society: the active 'I' is constantly in the process of taking social roles (thus becoming 'me', i.e. 'the organized set of attitudes of others which one himself assumes' - Mead, 1934)." Valsiner and Van der Veer, 1989.

Mead's approach is to analyse people as adults functioning knowingly in society, thus the self which he examines is the social self, and not cognition per se, thus his view is not particularly developmental in attitude, though its significance is for development. To put it more clearly, Mead looked at what is 'now', in the adult, and attempted to derive from it a simple model for how what currently exists could have come into being by some form of learning process, as opposed to examining the nature of self-perception in any longitudinal way in the course of its personal evolution through childhood. Mead was a sociologist, and his interest lay primarily in the nature of modern social functioning as it existed at that time, hence his lack of attention to the details of hypothetical structure in the mind, and his focus instead on the processes of society that could be put forward as candidates for the role of cause. Which is not to say that Mead did not consider the mind, but rather that from his viewpoint of social determinism it made more sense to concentrate on the determining external forces than to risk solipsism by looking from the 'inside out'. The mind for Mead was to be found in the

act of reiteration of the internalised attitudes one possessed to the 'generalised other' as it existed in our selves:

"Thinking is a process of conversation with one's self when the individual takes the attitude of the other...it is this inner thought, this inner flow of speech...which constitutes the mind..." Mead (1965).

It is only when we 'speak our minds' that our minds as such come into being. The process of internalization of the generalized other involves the learning of appropriate forms for communication, such as are in the language, the gestures, the sign structure, which leads to the construction of a coherent response framework which supplants the need for an actual 'other' to exist externally, for there to be a tangible 'public other'. Internalization is the making private[4] of the norms and ideologies of society as embodied in conversational practice, in discourse, by their integration into the dialogue between that part of self termed 'I' and the generalized other. We tell ourselves of our plans, if you like we convert them into a format that readily allows comparisons to be made with established norms of conduct and attitude. If you were to take the view (as James, for example), that we become aware of our activities by observation of our own behaviours, then the function of the self is to make our intentions 'external' in a private forum that exposes these intentions to 'public scrutiny'. We can engage in a referendum in absentia.

Mead, however, took a different tack to James in terms of what and how behaviour was observed:

"Mead (1934) accepts James' ascription of centrality of agency to the experience of the "I"; but Mead also rejects the Jamesian reduction of identifying agency to motor movements, preferring instead to emphasize its experiential importance. Rather than following James' path of biologizing the sense of volition, Mead situates the "I" within a social context, along with the objective self." Damon, 1988.

---

[4]Personalizing, if you like.

William James

Mead followed James in his conceptualization of emotional experience, seeing emotions as resulting from the socially-influenced (ie by experience) modification of 'impulses' resulting from innate instinct:

"...the stimuli that elicit instinctive acts activate "vasomotor processes" (Mead, 1895: 164) that produce the "visceral disturbances" that are experienced as the basic "feelings" of emotions (Mead,1903:95). These basic internal responses serve as the biological component of subjectively experienced emotions...Only during symbolic socialization do feelings become intermeshed with symbols to produce the complex emotional experiences typical of verbal children and adults." Baldwin, 1985.

What is required for this private yet public display is that the self be able to detach itself from itself, to see itself as another, not just in the form of the generalized other to whom the discourse is addressed, but as an other that is the performer of acts and the holder of views which are made available through the internal dialogue to society. The self must be able to have a perspective and be able to look at itself, to have an awareness of its own relative existence. It must see itself as a coherent functioning entity, a person, so that the relationship to the norms revealed in discourse becomes apparent.

Reflexivity

"The essence of self, according to Mead, is its reflexivity. The individual self is individual only because of its relation to others. Through the individual's ability to take in his imagination the attitudes of others, his self becomes an object of his own reflection. The self as both subject and object is the essence of being social." Coser, 1977.

Mead ascribed this role of the actor to the 'me' of the self. While 'I' may act, it was 'me that did it'. 'I' am a function of the beliefs that I hold about the actions and attitudes made flesh by 'my' behaviour and thoughts. 'I' exist now, but that which existed to express that statement was 'me'. Here we can see quite clearly the debt owed to Baldwin. In the development of

the essential dualisms of Baldwin, that of Mind and Body and of Subject and Object, there is the structure to support the formation of the differential perspectives that make up the 'I' - 'me' distinction of Mead. Mead takes Baldwin's ideas further, by suggesting that not only does the person internalize the action of cooperation with others, as well as forming the association between personal feelings and those of others performing similar actions, but that in a sense they internalize the other person as well. Communication and cooperative action are stressed by Mead, following again from Baldwin's (and pragmatist ideology in general) ideas on evolutionary pressure towards social coordination, and consequently language is seen as an interaction, not an independent process that any one person can perform in isolation. Language is in essence an act between people, and the role of inner speech is to allow access to society, to the social mind, much in the same way that external speech creates a sharing of experiences:

"The peculiar importance of the vocal gesture is that it affects the individual who makes it just as much as it affects the individual to whom it is directed. We hear what we say; if we are talking with our fingers we see what we are saying; if with attitudes of the body, we feel what we are saying. The effect of the attitude which we produce in others comes back on ourselves. It is in this way that participation arises out of communication. When we indicate something to another form, we are calling out in that individual a certain response in him." Mead (1965).

Thus, in communication, our aim is to create in the person with whom we are in communication a sharing of our particular state. We wish for them to feel the same thing when they hear our words that we are feeling when we speak them. And in our communication with the generalized other we speak with a high degree of confidence that this will be so.

L.S. Vygotsky

"...it has been routinely assumed that the child's mind contains all stages of future intellectual development; they exist in complete form, awaiting the proper moment to emerge." Vygotsky, ("Mind In Society", 1978/1930).

Soviet Science

For historical sociopolitical reasons there has been a strong tendency in post-revolutionary soviet science to ensure the inclusion of marxist-leninist principles (i.e dialectical and historical materialism) into all theory, particularly during the Stalin era. The influence this has had on soviet psychology (as well as the effect of the generally more eclectic approach to science in the the soviet union in general) has been to stress the social side of social interaction, and to see the standard practice of science more broadly than in the west, involving more the arts, literature and philosophy, than westerners might. The division into arts versus science that we are familiar with is ascribed by Valsiner (1988) to stem from the Russian Orthodox Church's distance from the upheavals of the reformation, or the events of the Renaissance:

"As a result, the differentiation of the spheres of secular and religious life (a major result of the Reformation and the advent of capitalist production in society) that emerged in Western Europe remained largely unknown in Russia."

Soviet psychology takes very much a developmental approach to social psychology, seeing the nature of an individual as not static, but constantly evolving. The methodology is then by preference longitudinal. It is not assumed that taking a 'sample' of one person is sufficient, or even comparable to any other at that particular point, particularly if the definition of that point is by age. Each person is a product of their individual historical relationship with society, and consequently a product of the history of that society. One of the most influential figures in soviet social psychology was L.S. Vygotsky, a particularly eclectic figure,

beginning his career as a literary critic and considering psychology as a "temporary diversion" (Kozulin, 1986), and then going on to continue in psychology as his life's work. Vygotsky's influence can be seen in part demonstrated in how the noted soviet neuropsychologist Luria saw his work as simply elaborating the ideas of Vygotsky, and I will attempt to briefly elucidate Vygotsky's description of cognitive development as prototypical of the soviet approach.

Vygotsky did not of course work in a vacuum, but based his ideas on those of the people who came before, but his formulation is considered the most significant, and well substantiated by a wealth of research work.

Marxism-Leninism

Vygotsky believed that the manner in which psychologists prior to his time had interpreted the value of Hegel and Marx for psychology was incorrect, that they had simply paid lip-service to the dogma, and not seen in it the viable model for explaining the development of human thought that it contained (Kozulin, 1986). Vygotsky found in Hegel a basis for a description of human development in a social context:

"We believe that child development is a complex dialectical process characterized by periodicity, unevenness in the development of different functions, metamorphosis or qualitative transformations of one form into another, interweaving of external and internal factors and adaptative processes which overcome impediments that the child encounters." Vygotsky, 1978/1930, (cited in Bidell, 1988.)

Marx's influence on Vygotsky came in three forms (Wertsch, 1985): firstly in his method by the use of the "genetic explanation", looking for the source of the genesis of the whole in the characteristics of the unit:

"The whole of *Capital* is written according to the following method: Marx analyses a single living "cell" of capitalist society - for example the nature of value. Within this cell he discovers the structure of the entire system and all its economic institutions...Anybody who could discover what a "psychological" cell is - the mechanism producing even a single response -

would thereby find the key to psychology as a whole." Vygotsky, 1978 (in Wertsch, 1985).

Thus Vygotsky saw the search for the appropriate unit of analysis as crucial for the understanding of cognitive development. The second point of influence is Vygotsky's adoption and utilisation of Marx's idea of activity (praxis) as the appropriate explanatory vehicle for the point of interaction between the individual and the whole (Wertsch, 1985). Thirdly, the source of individual cognition in the structure of society:

"To paraphrase a well-known position of Marx's, we could say that a human's psychological nature represents the aggregate of internalized social relations that have become functions for the individual and forms of his/her structure. We do not want to say that this is the meaning of Marx's position, but we see in this position the fullest expression of that towards which the history of cultural development leads us." Vygotsky, 1981 (in Wertsch,1985).

Vygotsky reacted against the then dominance of 'reflexology' in soviet psychology, following the ideas of Bhekterev and others who sought to apply empiricist conceptualization to the action of consciousness and thus undermined the value of it (Valsiner, 1988). Explanation was sought under this ideology through 'reflexes', biologically predetermined dispositions to conditional action (cf Pavlov) that were invoked as elementary explanatory constructs, coming between stimulus and response much as in the standard radical behaviourist account, except that the lack of explanation in terms of consciousness is 'camouflaged' by appealing to the 'reflex'. The end result of this approach is a vast array of reflexes, for all conceivable situations (e.g. sex reflexes, mothering reflexes) that explain nothing, but merely describe. Mixed in with these constructs come attempts to relate one's ideas to the demands of politically correct dogma, and thus retain favour with the established scientific community. Often in soviet science it was the theory that could demonstrate the best justification of itself in terms of marxism-leninism rather than logical

reasoning that would be supported by the soviet scientific world (Valsiner, 1988). The standard method of advancement of personal opinion was to engage in argument with a 'rival'. Application of dialectical principles meant that acceptance of a new idea necessarily involved the abandonment of its predecessor. Opinions were seen as polar, and one defended one's ideas against all others. Failure in its defence meant that the theory itself was cast out, and the holder risked loss of funding and ejection from positions of responsibility (Valsiner, 1988). Such a fall from grace caused Vygotsky's ideas to be suppressed after 1936, due to (amongst other things) that Vygotsky's theory and research worked involved the then outlawed study of 'pedology', "interdisciplinary educational psychology" (Kozulin, 1986). Along with the practitioners of pedology, Vygotsky was seen as straying from the demands of dialectical materialism by focusing on semiotics and the 'signs' in culture, rather than the concrete relationship between a child and its activities in the physical world, as explanation for the arisal of consciousness (Kozulin, 1986).

Vygotsky's influences go far wider than Marx and Hegel, his interdisciplinary educational background was mixed with on-going interaction with Piaget (with whom, he often took issue), and the rising Gestalt school through interest in the work of Koffka (Valsiner and Van der Veer, 1989). Vygotsky's theoretical leanings were further heavily influenced by the work of the french psychoanalyst Pierre Janet, and most crucially by James Baldwin (Valsiner and Van der Veer, 1989). The influence of Freud and psychoanalysis in general was widespread in soviet psychology, though later opinion turned against this as being 'unmarxist', and thus became a further cause for the unpopularity and suppression of the work of Vygotsky and others (Valsiner, 1988). Vygotsky took a number of ideas from Baldwin, and extended and adapted them into novel forms.

He explicitly took Baldwin's concept of the personal self as arising through others, the self being seen to come into being as we become the 'other' for ourselves:

"The concept 'personality' is, thus, a social, reflective concept that is built on the basis of the child's use in relation to oneself, of those means of adaptation that he uses in relation to others. That is why it can be said that personality is the social in ourselves." Vygotsky, 1983, (in Valsiner and Van der Veer, 1989).

Internalization

Vygotsky's theory involves the development of cognitive skills through the successive internalization of action through signs. These actions go through a process from external existence to internal, from external action as initially imitation in a 'public' social sphere to an internalized 'private' but no less social sphere. The actions referred to are social actions, within a sociocultural framework and involving the 'tools' of the society, i.e. the language and sign-symbols, mnemonic devices and culturally-instilled heuristics and analytical techniques:

"According to Vygotsky, human behaviour and mind must be considered in terms of purposive and culturally meaningful actions rather than as biological, adaptive reactions. Objects of human experience...are socially and culturally meaningful things and not just abstract stimuli. Activity then takes the place of the hyphen in the formula S -> R, turning it into a formula, object <-> activity <-> subject, where both object and subject are historically and culturally specific." Kozulin (1986).

Activity is then mediated, by the physical nature of the tools that one uses, in their relation to the society that has created them and that they have created. The process of active internalization replaces external physical actions by internal signs, structures in cognition (structures of cognition more properly), which then act to influence further instances of internalization. The 'lower' mental functions such as perception and memory act as the building blocks for the 'higher' cultural functions:

"If one decomposes a higher mental function into its component parts, one finds nothing but the natural, lower skills...All the building blocks of higher behaviour seem absolutely materialistic and can be apprehended by ordinary empirical methods. The latter assumption does not imply, however, that the higher functions can be reduced to lower ones. Decomposition shows us only the material the higher functions are built with but says nothing about their construction." Kozulin (1986).

Because Vygotsky's theory has a Hegelian basis it can then be seen that decomposition could not reveal the pattern of construction because that pattern no longer exists. Dialectical development implies that succession involves subsumption, the process of internalization is equivalent to the redefinition of the subject and the object in the Idea of perception:

"The lower functions do not disappear in a mature psyche but are structured and organized according to specifically human social goals and means of conduct. Vygotsky used the Hegelian term superseded (aufgehoben) to designate the transformation of natural functions into cultural ones." Kozulin (1986).

The transformation into cultural functions was seen by Vygotsky to be very much based in language, as language comes to structure the psyche according to the interaction of sociocultural conventions as embodied in the particular language and the relevance of these to personal experience. Overall, Vygotsky's ideas of internalization and of action must be related to the the idea of interaction with another, so that the connection between signs in the 'internal self' is a reflection of of the relationship between signs (and other psychological tools) as they occur in the action of the 'external self' specifically as this self interacts socially with others. Thus the process of internalization becomes the replacement of other people in action by the relationship between signs in the internal self:

"...the source of the intellectual activity and control over one's behaviour in the process of practical problem-solving lies not in the invention of a purely logical act, but in the application to one's self of a social relationship, in the transfer of a social form of behaviour into one's own psychic organization." Vygotsky, 1984, cited in Valsiner and Van der Veer, 1989.

The Zone of Proximal Development

Vygotsky emphasised that the activities of children never take place outside of a social context, and that play anticipates future social activity (Holowinsky, 1988). How a child acts, the nature of stimulation that is made available to it is shaped by the adult world that it inhabits. The adult world and its preconceptions and expectations determines what skills the child will practice and thus the course of cognitive development. The child proceeds through active imitation and internalizes the model of action provided by the adult that extends what Vygotsky referred to as the 'zone of proximal development', the range of skills that the child has, how far it can go before it requires an adult model to provide direction to the correct solution:

"...[it is]...*the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers.*" Vygotsky, 1978 (in Wertsch, 1985).

Piaget

Vygotsky's similarities to Piaget, who also followed a dialectical course in theory, are probably obvious, but the differences may not be. They both advocated a position that states that developmental progress does not occur on the basis of *a priori* knowledge structures, but instead on structures that develop in the course of active internalisation by the child of the patterns of action. From this Piaget's stage-type conceptualization can be easily seen to follow, as higher cognitive structures do not exist, are not grown into in any inevitable maturation sense, but develop, as Vygotsky also states, from lower structures. The stages, then, are individual, unique to each person, and any apparent general character of development between individuals can be put down to environmental

regularities and the demands that the acquisition of higher abilities has for the possession by the individual of the lower. That is, there is a single objective reality for all, and we each, loosely speaking, possess the same physical attributes for exploring and understanding it. Piaget's dialectics do have, however, some similarities with Kant's notion of categorisation (Bidell, 1988). Where Kant sees the structures in cognition as universal, and culturally and historically transcendent, so too does Piaget, but Piaget has an individual life-history source instead of a fixed genetic basis for ontogenetic progression. It is partly these somewhat Kantian leanings in Piagetian thought, and the potential for reductionism he saw as inherent in the use of physical action as a unit of analysis (Bidell, 1988) which led Vygotsky into disagreement with him. It is also the manner in which Vygotsky disagreed with Piaget that partly led to the reason for his later fall from grace with the power structure in the soviet scientific community; namely his belief that, rather than seeing internalisation of action as being a 'neutral' process of the assimilation of 'physical' action into schema, as Piaget, internalisation should, of necessity, be seen as social, and involving the intermediacy of tools and the adoption of the role of the other into the self (Valsiner, 1988). Vygotsky felt that Piaget paid insufficient attention to the social significance of action, and decontextualised it by not focusing on action's semiotic value (Valsiner and Van de Veer, 1989). Vygotsky felt that the appropriate unit of analysis for the study of cognitive development was tool use, or "discourse activity" (Bidell, 1988), practices involving social interaction.

Sociogenesis conclusion

It may appear at a first reading that the theorists discussed above are all simply restating the central postulates of sociogenesis (Valsiner and Van der Veer, 1989) in slightly different forms but in a way that makes no real

progress. However, difference does exist, and it is to be found not so much in the descriptions that are used as in what it is that they are trying to describe, the goal of exploration. These goals have extreme overlaps, and are difficult to distinguish because of the shared nature of the explanatory constructs as inherited from Hegel, and perhaps earlier, and as they passed down to their contemporary form in social constructionism and other emerging doctrines of the social constitution of action and meaning. The central shared concept, even if not acknowledged as such, is that of the dialectic. The differences emerge from the objects of inquiry; for example for Piaget it can be seen as the development of motor and analytical skills in childhood; for Baldwin and Royce it's the development of 'personality'; for Vygotsky it's the development of the self in childhood; for Mead it's the development of self as manifest in the social adult. Again, it is arguable that these concepts are not distinct and that, more than simply inter-related or inter-dependent, they are synonymous. It is, I feel, a question of scale and perspective that is fundamental. Each of these workers come to the same questions, using the same tools of inquiry, but focus at different degrees of magnitude and from different angles. Piaget traces cognitive development to the point of 'true adult' socialization, and almost takes a reductionist approach, analysing micro-level units of analysis (Valsiner and Van der Veer, 1989) such as individual behaviours and analytical skills. Vygotsky takes a broader view, a 'step-up' in an idealised scale hierarchy of overt social relations, looking from a perspective of the interaction between person and society. Further, Piaget has an arguably Kantian end to a dialectical process, using 'reciprocal determinist-type descriptions of causality to account for the appearance of cognitive structures that equate with Kant's a priori categories (Valsiner and Van der Veer, 1989). Piaget's adult will utilise the cognitive structures that have formed through childhood in comprehending the world,

imposing a reality onto confusion, dichotomising experience and dividing reality. Piaget looks from inside the child out at the world. Mead too has this internalizing, bringing-inwards approach, but, as Vygotsky (although perhaps not quite as much), sees that which is 'brought in' as being continuous with the society from which it was formed. I am the other for myself, and the other that I am is the product of the socially-based self-perceptions that I have.

Mead and Vygotsky differ greatly in their choice of subject, while both share an approach and common philosophical influences, Mead was an academic, who, while actively involved in social reform, held concepts of development that were abstractions and applied to 'people', to socially-functioning adults. Vygotsky worked as an experimental psychologist, concentrating on the development of cognition through childhood, and, while holding similar beliefs as to mechanisms as Mead, applied them much more in empirical research, at a different grain of analysis. It is this grain of analysis that is the crucial difference. For example Piaget held that an analysis of the social context of action is of lesser importance because it is the physical rather than the social environment that is of initial impact on the child. The child functions without a social awareness in the first stages of cognitive development, and thus in a socially 'neutral' world. Mead might conceivably let that pass, not so much from agreement, as from a lack of comparable focus. Mead's sociological perspective distanced him from this view point. Perhaps, at that micro level of analysis, it could be said that society has no influence? However, from a Vygotskian perspective, there is no such possibility. The use of the tool as the fundamental unit of analysis means that there can be no neutrality. From the moment of birth[5] the world that the child inhabits derives its form

[5]And from some weeks before (see later).

from society. As Baldwin, Vygotsky saw the role of the parent's expectations as a shaping force for personality. But, are we talking about the same thing in these two cases? Do we have comparable theses, or is the distinction in scale too great? Is there a point in perceptual development that represents the line where the physical structure of the world becomes of social significance, and previous to which there is only patterned light and sound, uninfluenced by the intentional design of human society?

Control requires a sense of self, a sense of personal agency, at least a rudimentary identification of cause or apparent correlation between a particular action and a particular outcome. Control and identity go together. As to whether there is such a thing as a world stripped of social value, one must question what this 'social value' actually is. What do we really mean by the social environment, are we talking about some objective facet of existence? Is it part of the physical environment or distinct from it? To clarify the point (I hope) we must see that the social environment as such does not exist in any sense of material identity, it is a social artefact. There is really only the physical environment, in which there are people acting. It is the actions of people that constitute what we refer to as the social environment, but the use of this term implies something other than what it ultimately is, a categorical statement performed to simplify reality for social scientists. The 'social environment' label merely serves to identify a particular class of action, that action which is performed by people. In this idea of social action is included the products of action (ie literature, the arts in general, bus stops) *as they are perceived* by a person. Things that involve communication involve a social act. Things listed as being in the social environment are those that are constructed by society, that is, by people, and hence have a social meaning as part of a particular social act. A conversation, if you will

(Harre, 1986). But this social meaning only exists in/as the act of perception, it is dialectical. Given this approach, it can be seen that all that is required for a 'social environment' to exist is that there be at least one person present, and that the nature of this environment is determined the perceptual capacities of that individual. The perceptual capacities here are directly related (if not equivalent) to the sense-of-self (personal identity) that a person has (?is). The 'greater' the sense-of-self that a person has, that is the degree of access to the 'social mind' (the refinement of sensitivity), the larger or more detailed the 'social environment' becomes. And yet, while we might argue that the social and the material worlds are one and the same, this still does not adequately address the question of whether the social environment is real for a pre-verbal child. Can a pre-verbal person have a sense of social consequence, more generally, can we ascribe implicit knowledge to a social actor when they cannot provide (or we cannot clearly find) evidence of knowing the rules to which they appear to conform? It is not possible, other than by the construction of graduated (and probably highly suspect) performance criteria, to set strict values for the stage of 'identity' that any one person is at. How much identity is sufficient to be a 'person'? What belief constitutes an adult? How do you assess the 'stage of personality' of a partially verbally-competent child? What sense would it make to do so? How then do you decide when a person has awareness of their 'social reality'? Accepting this, do you then set your performance criteria to include pre-verbal action, and if so, is it then possible to verify it?

The ultimate judge of the social value of any action has to be society. The social value of an action is a function of its consequence for how that actor is seen to be performing in comparison to the appropriate social norms. Our actions, then, can have social significance beyond our intentions, and

it is how others evaluate our actions that determine the success or otherwise of our social performance. Thus, self-awareness is not necessary to be a participant in social action. To be born is enough, plus that the current prevailing belief in society in a maturation-type model continues. So long as people work under the (somewhat naturist) assumption that children are merely small adults, and experience the same emotional events (and are thus implicitly in possession of the same value structure) as adults, then demonstration of awareness of social significance will not be necessary.

James Gibson and the Ecological Approach to Perception

James Gibson was a perceptual psychologist who followed on from James and Dewey, with a philosophical intent to restore the place of the environment back into its role in the understanding of human perception.

Gibson fought against what he saw as unjustified mentalism in the understanding of perception emerging from the use of theoretical models that required the intervention of cognitive constructs for meaning to emerge from perception. He wanted perception to be seen as direct, and unmediated. It was his belief that perception was a matter of sensitivity to particular aspects of one's environment, to the rate of change in information flow, and to contrast. People are sensitive to change, and to the relationships between objects in their environment. Information about the distinctiveness of two forms come from cues like occlusion, separation under motion, and relation to environmental features, like gradation changes with increasing distance for example. Gibson especially emphasised that perception is active, and that organisms seek information, they are not passive receivers of input but intentional

hunters of change. In an apparent paradox typical of this area it was felt by Gibson that sensitivity is about the detection of invariance, those things that under transformation do not change. Things falling into this category are such as ratios and rates. The perceptual systems are sensitive to those aspects of the environment that under conditions of change remain the same.

Invariance

Gibson held that the issue of primary importance for perception is information, and for perception of motion in particular it is the rate of information flow over time that gives us our clues for spatial arrangements. Remembering that perception is active, it can then be seen that an intentional change in our perceptual systems allows us to make change that yields up information to us. For example, moving one's head, or simply closing an eye alters how an object will appear. It is the change that is produced by our perceptual actions that reveal what is invariant in the world around us.

The Gibsonian position is extremely hard to define, as it is as much of an opinion on appropriateness of the methodological stance one should take, as it is a model of how we perceive. Gibson was opposed to the construction of models, but suggested that rather than inferring how people had their actions supported by hypothetical cognitive architecture, we should look at what aspects of their environment people were sensitive to. But still, an analysis of the environment in isolation from the perceiver was to be avoided.

Gibson's ideas have been taken up by a school of thought often identified as the ecological, after the title of Gibson's influential book "The Ecological Approach to Visual Perception" (Gibson, 1979). Ecological is a very

appropriate term to use, as the emphasis was very much on the bi-polar nature of perception.

Reciprocity - Effectivities and Affordances

The ecological approach, as espoused by Gibson, looks at the reciprocity between a person and their environment. What a person is capable of perceiving (is sensitive to) depends both on what the environment offers, and what their physical capacities will allow. The abilities that a person possesses are termed their 'effectivities'; the features of the environment that a person is sensitive to are termed the 'affordances'. Affordances are the opportunities for action that are available according to the effectivities that an individual possesses. Examples of effectivities are hands, opposable thumb, eyes, colour vision, binocular vision, hearing in a particular range, bipedal locomotion etc. Effectivities can be equated with physical features that one has, and the way in which these shape action determine how one perceives. According to the ecological approach one perceives the affordances of things, their uses, directly. Whether a thing has features that are useful is relative, so that individuals with different abilities will perceive different affordances. The object is the same for both individuals, (this is not simple solipsism), but the way in which it is perceived is different.

Action and Praxis

The ecological approach takes the workings of perception and describes them in terms of action. Action is the point where person and environment merge, and it is action that is seen as the fundamental unit of analysis for Psychology. A ready parallel can be drawn here between the concept of action and Marx's concept of Praxis, with Gibson re-drawing it in the guise of behaviourist theory as it was in the 1950's.

The ecological approach, while striving against Cartesian Dualism in seeking to avoid the use of representation-type theories of perception finds itself still on the continuum of dualism with the Kantian leaning of the concept of the genetic instantiation of primary sensitivities. That is, people are sensitive to particular aspects of their environment from birth. As to how experience allows the modification of perceptual sensitivities to make finer distinctions in what we experience is an issue that is still contentious within the ecological school. Refinement of sensitivity obviously occurs, as shown in the work of Eleanor Gibson (eg Gibson, 1988) on the development of discrimination ability in infants, but as to whether this should be related to some idea of cognitive structure is as yet not unanimously felt.

The ecological approach stands as a radical approach in Psychology to describing knowledge as part of an act of knowing, yet it remains still on the continuum of distance between perceiver and perceived, as it assumes prior structures of categorisation in the organization of the sensory systems for the extraction of change. Its methodological emphasis on both the features of the environment and the action properties of individuals makes it one of the more balanced approaches, but the effect of describing the methodological approach in the standard terms of a theory in Psychology has the potential for a great deal of confusion. The ideas of the ecological approach are not well conveyed by conventional terminology and produce a similar 'mental turmoil' to be experienced when trying to come to terms with Hegelian Idealism, and for much the same reason. Our language just doesn't have the adequate concepts for communicating this kind of personal insight. As to why this is I will look at in more detail later.

Why examine the nature of knowledge?

Why go into an examination of whether we can 'know' or not, why is it at all relevant? The nature/nurture issue is a great nuisance, it polarises and creates divisions that are not not necessarily as great, or as significant, as they might appear. It would be very nice to find a way of describing peoples' perceptual existence without having to use these divisive terms. The dichotomy into innate versus learned clouds the fact there is no real opinion held one way or the other. There is no such thing as a completely innate behaviour, nor is there such a thing as a totally learned one. So why bother arguing this tedious and inevitably insoluble problem? What value is there in it?

What I wanted to outline by describing the differing points of view on the nature of knowledge, is a way in which what is held to require a biological basis can be seen to exist on a social one. That's a little confused, let me try and explain. First principle, the separation between the knower and the known is not as great as it seems. The two depend on each other and are not separate entities. Second principle, form exists in nature, not in the act of perception.

If we take the view point of people being separate from the world they experience, if we exist inside our minds and peer out through windows in our flesh, then we need previous knowledge (ie innate) to interpret what it is that we experience. How can we know except by comparison to what we already know, and where do we derive this very first piece of knowledge from? Alternatively, if we relax the borders, if we allow the distinction between the seer and the seen to be purely semantic, a convenience of language, then we can derive meaning from action, and let knowledge arise not prior to experience but as a part of it. Human

natural language does not lend itself readily to descriptions of abstractions. Language is metaphoric, and is reflexive, as well as being derived from everyday experience. The attempt to describe a situation that cannot be experienced is beyond its capacities, given its grounding in personal life.

The reason for attempting to break down the barriers between the self and the environment is to allow for a description of the development of the self that is intrinsically involved with it. The visual world becomes sensible within the practice of looking, not prior to it. There is order in reality, it does not need to be applied by the practice of reason. The world is full of lines and curves, there are shadows and bursts of colour. There is change, but change that is orderly, that exists in patterns and symmetry. Yes, we see the world in colours because we have colour vision, but colour vision does not create colour, light exists even if we are not sensitive to it. Sound exists, there is symmetry in natural wave forms, we are sensitive to a particular range of vibrations, we can discriminate between particular frequencies, but hearing does not create vibration, even if our ear structure is such as to be selectively sensitive to particular energies and insensitive to others the nature of the relationship between the cycles exists independent of our use for it. The structure of the ear evolved to the properties of sound at different frequencies, not the other way around. To return to the point I am striving for a little more clearly, it is not necessary to have an innate record of the world and how it is formed, you don't need to know what is there to be learned. It's not necessary to postulate innate capacities for particular forms of knowledge when all that is required is an ability and a will to learn. In a way, the strength of human reason lies in what we don't know. Because we are so empty we can become so full. What I am fumblingly describing is the development of knowledge hand in hand with what is known.

Why am I spending so much effort (and it is effort) on describing what comes down to a concept of natural kinds? That is, that the way in which things are related is a consequence of what they are, and exist independently of how they are being experienced? Because, I want to see the way consciousness works as being a function of what it has been required to do in the course of its development. That is, not as some pre-determined set of rules that exist prior to their application, but as a set of experiences that come into being as they are formed. From this, the reason that the individual consciousnesses people have (or are) appear so similar is because their life experiences are so similar.

"It used to be assumed that behaviour found to be uniform within a species must be determined by the animals' common heredity, because heredity is constant while experience varies form animal to animal. This is a fallacy of the instinct conception which over looks the fact that in some respects *the animals environments have as much in common as their genetic constitutions*." Hebb, Lambert & Tucker, 1971.

Gross physical disabilities aside, people experience the same 'environmental parameters' as they grow. For example, gravity pulls them down, if they raise their limbs they tend to fall if unsupported. Moving the head results in sudden visual change, movement of the chest results in the passage of air through the throat, crying results in a variety of sensations, and the experience of some sounds can be modulated by personal action. The reason for the similarity in consciousness is because of the similarity in sensory experience, and the similarity in sensory experience is because the environment supports the same range of actions. You don't need to enter the world equipped with knowledge, because it is there for you to find.

Much of the philosophical shift away from strict naturism and the dominance of the internal mind/soul on personality came with greater

acceptance of the idea of homo sapiens as just another species, and with the realization of the role that environment plays in the form that species take as exemplified in the Darwin-Wallace theory of speciation by natural selection. The attempt to apply the implications of this approach to psychology and sociology gave rise to the sociogenetic approach, and represents a theoretical shift and implicit acknowledgement of the continuum between a person and their environment. What Natural Selection says is that there are two sides to the relationship an animal has with its world. Not only is there variation in the structural forms and the behaviour of an animal coming from its genetic background, but the success of any variation also depends on what the environment will support. The Natural Selection approach says "look outward", ie don't just look to the soul for the source of variation, take a practical approach, see what use variation might be.

A further implication of Natural Selection is that species change. So, reality is not static, but dynamic, and no longer is goodness-of-fit the best criterion for long-term success, but instead adaptability of behaviour becomes paramount. The ability to change as required becomes an essential in an uncertain world.

No less than for any other animal, and perhaps more so than most, homo sapiens is best suited for a range of environments by being best suited for none.

2 The Social Co-evolution of Cognition

"...nature seems here eternally to impose a singular condition, that the more one gains in intelligence the more one loses in instinct." Julien De la Mettrie, (1748).

A strong parallel can be drawn between the acquisition of language in childhood, the acquisition of cognitive heuristics in infancy, and the personal construction of emotion throughout the life-span. The unifying factor underlying these is the hypothetical mechanism, that of active internalisation of environmental contingencies. These lead to an ascent of the procedure of internalisation through a hierarchy of complexity and/or abstraction. What I mean by this is that while it might appear that the idea of internalization is simple associationism, and the use of the concept is akin to reductionism and/or ideas of classical conditioning this is not the case. It is not so because each instance of internalization (which is not actually divisible into discrete events, but is rather an on-going series of processes of indeterminate duration) changes that which internalizes it, so that assimilation of relations affects subsequent assimilations in a non-trivial fashion. Each new 'addition' to the total of internalized personal experiences will have the effect of altering how further events are internalized, with some having an apparently more significant effect than others. It is these experiences, building on the experiences that have made them possible, that give the 'step-wise' or 'plateau' effect, of discrete stages to the graph of human cognitive development. It is to be noted that this idealised graph is an average one, with very large variances attesting to the great degree of individual variability.

But what is meant by internalization?. It is undeniable that all theories of cognitive development involve the incorporation of on-going experience into the individual's growing body of knowledge, the differences arise when one considers whether the acquisition of knowledge described is active or passive (explicitly or implicitly); the way in which this incorporation occurs; what it is that is incorporated; how it is represented

in memory (if at all); and what the basis of knowledge acquisition is, that is, the learning framework.

"...the changes undergone by the Western self are not developmental changes brought on by an inner logic, the unfolding of a secret genetic code, or the peeling of layers of enlightenment. The self has undergone extreme, erratic, often discontinuous change because it is part of the larger sociohistorical fabric of its time. The self must function within a particular cultural pattern: matching, maintaining, and replicating it." Cushman (1990)

There is, I would assert, an implicit theoretical assumption in mainstream psychology that children are born with a pre-existing relational framework into which expected components of experience are slotted as they are encountered. This viewpoint is well described by Rahmani (1973) as:

"...the biogenetic law...[which]...implied that the child's mental growth is spontaneous and largely independent of education which could, at most, either accelerate or inhibit the manifestation of the innate qualities of the psyche."

It is assumed that this relational framework (cf Kant's idea of a priori categorisation) is the underlying cause of the observed (and widely accepted) 'universals' in behaviour, cognition and emotional expression. The adoption of this idea predisposes one to a dualist position, moreover, a position which focuses on development from a teleological perspective, seeing an inevitable course to development.

"It is fairly clear that the process of maturation to the steady state is deterministic. Language learning is not really something that the child does; it is something that happens to the child placed in an appropriate environment, much as the child's body grows and matures in a predetermined way when provided with appropriate nutrition and environmental stimulation." Chomsky, 1987.

It is of course too extreme to assert that this implies total determinism of thought or predestiny, but it does imply a rigidity of abilities and a separation or independence of person and environment. Under this conception nature is confused and it is required of reason to impose order

onto it, to partition reality. Knowledge has its roots (and limits) set in a person's genotype.

"...there is a special faculty of the mind/brain that is responsible for the use and acquisition of language, a faculty with distinctive characteristics that is apparently unique to the species in essentials and a common endowment of its members, hence a true species property." Chomsky, 1987.

The progression of cognitive development in infancy is then seen to follow an inevitable pattern that mirrors the laying down of pathways (canalizing) in the neural structure of the cortex according to the design laid down by the individual's genetic heritage.

Noam Chomsky is a highly influential figure in psycholinguistics, and his theoretical opinions are representative of widely held views on the origins of language, as well as the nature of cognition in general, so he provides a good example of mainstream thought. He advances the picture of cognition as representations of reality that work on data input by the senses. Very much an information-processing approach. As quoted earlier on, he sees the information available in the environment as being insufficient to provide the material from which an understanding of the workings of the world could be extracted. He is an avowed dualist:

"...we should...adopt something like the Cartesian concept of innate ideas as tendencies and dispositions, biologically determined properties of the mind/brain that provides a framework for the construction of mental representations, a framework that then enters into our perception and action." Chomsky, 1987.

Within this, the child gains language use as the incorporation of specifics of any one language into a schema of language in general. There is a specific schema that the child is born with to put the data it encounters as speech into the schema it possesses as its guide to translation.

"The initial state of the language faculty can be regarded, in essence, as a language-acquisition device; in formal terms, a function that maps presented data into a steady state of knowledge attained. This general

conclusion allows many specific variants...but it is virtually inconceivable that it is wrong in any fundamental way." Chomsky, 1987.

From this starting point of holding laws about language in general that are genetically-determined, we then use these laws to extract from our environment the features that we know are related to language.

"The environment determines how the options left unspecified by the initial state of the language are fixed, yielding different languages." Chomsky, 1987.

But this process of discovering the particulars of the language into which we happen to have been born is not equatable with the concept of learning.

"The term "learning" is, in fact, a very misleading one, and one that is probably best abandoned as a relic of an earlier age, and earlier misunderstandings. Knowledge of language grows in the mind/brain of a child placed in a certain speech environment." Chomsky, 1987.

There is a forthright frankness in Chomsky's writing that leaves little room for misunderstanding. He is bold in his statements, and makes his position as an extreme genetic determinist quite clear. Others might not be so clear in their statements, but the implications of adopting Chomsky's ideas on language acquisition remain as an implicit acceptance of the concept of pre-existing relational structures in the brain of the neonate, structures that shape the course of cognitive development almost irrespective of experience.

Chomsky's ideas on the prior nature of reason have a familiarity that stems from their classical origins:

"If we are disinclined to accept the immortal soul as the mechanism, we will follow Leibnitz in assuming that Plato's answer is on the right track, but must be, in his words, "purged of the error of preexistence". In modern terms, that means reconstructuring Platonic "remembrance" in terms of the genetic endowment, which specifies the initial state of the language faculty." Chomsky, 1987.

As earlier stated, Plato saw knowledge residing in the soul, but the transition from its existence in the Realm of Forms to its incarnation in a human body causes it to be confused and lose the sense of correspondence between reality and its corporeal appearance. For Chomsky, the position of the confused soul can be synonymised with that of the gene. Like the soul it has knowledge about the Universal forms it will experience, needing only time for it to become familiar with the particulars of this individual life. Sperm and egg are the soul divided, and their 're-uniting' is the equivalent of the soul's rebirth into the physical world. Unlike the Platonic soul however, the gene is capable of change and is by no means immortal.

If we are not to accept the "biogenetic" viewpoint for cognitive development, then it needs to be clarified how such the apparent complexity that underlies adult behaviour can come into being as an inevitable consequence of existence.

Seek and Maintain

The idea of the minimum substrate for emotional development has been mentioned previously, but not deeply explored. The reason for considering it is to find a justification for the abandonment of genetic predeterminism in emotion by the presentation of a plausible alternative that relates personal development to individual needs and abilities.

The first postulate of the proposed minimum is that: experience of 'feeling' as a component of emotion is the experience of recall of autonomic response to an environmental contingency. So, emotion is not so much introspection as retrospection. We become aware of the memory of the previous autonomic response as it elicits an autonomic response now. There is little difficulty in equating this with the concept of an

automatic schema and so little deviation is required from what is currently accepted as the modern interpretation of the James-Lange model. How one might deviate from this is in examination of how this schema comes into being, is learned, rather than existing as some pre-determined basic reflex. Or rather, to see if this 'basic reflex' is not perhaps even more basic than we would at first consider.

The second postulate is that: infant development can be described in a way that requires very little teleology of the expansion of consciousness and thought. The developmental process need not be described in terms of personal goals at all. In the case of the neonate, its actions can be seen not so much as the result of drives or motivations, but to centre around the capacities of its sensory systems. Its initial actions are chaotic. It is not necessary to suggest that it has 'knowledge' of the relations between what it can do and how this would affect the world around it, in fact, it is not even required that it should distinguish between the 'outer' world and the 'inner' as it will do later. While all of the newborn's actions are exploratory this is not out of any sense of 'curiosity' or purpose or anything we would associate with consciousness or intention because these have not yet come into being. Consciousness develops as a product of the accumulation of memories, in particular those of the direct consequence of personal action.

Third postulate: that there is sufficient information available as the CNS develops for it to arise in a structured (ie non-random) form. Is it necessary that memories be provided for the neonate as a 'seed of consciousness', or does the opportunity exist for the child to have its own consciousness come into as the product of its experience alone? The child's experience does not begin from the point of birth but at some point in its gestation. The child's memories start in the womb. It has

experienced light and shade, motion, sound, has been exposed to the elements of language, develops recognition of its mother's voice (Maurer and Maurer (1988)). The foetus is not isolated in the womb, the uterine walls are not steel and there is opportunity for it to coordinate its sensory systems actively. While not all of the infant's CNS is complete from birth quite a lot of it is, and this neural organisation has the opportunity to 'learn' its place in the life of the child. Pattern in its growth, the manner in which it comes to interact with other system components, need not come from some form or organisational design but can come from the nature of the interrelationship of its properties, its patterns of actions, as they influence, and are influenced by, the neuronal elements that make up its environment. So, each neuron learns, has its pattern of firing set according to its surroundings. The ability to alter firing conditions is the basis of learning, it is the matrix in which memory exists, it is the underlying principle of behavioural development that patterns of neuron states are formed according to experience.

The same pattern can be postulated throughout the course of development at whatever level of complexity you choose, whether it be at the single cell or the entire active individual. The human organism is colonial, a (rather large) group of cells that are individual at basis, but a group in their co-ordination of behaviour. At the basis of this interactive description of development is the principle of necessity: if it is never required, it will not come into existence. If it can be learned, then it need not be set.

To return to behaviour more directly, while there is opportunity for the child to learn co-ordination between sensory and motor systems in utero, this is somewhat constrained by absolute size limitations, physical attachment and the aquatic life-style. And for what will be the major

sensory systems, the visual and auditory, the chances for active exploration are even more reduced. The sensory systems for internal co-ordination (eg vestibular, kinesthetic) can come to know each other in active display. Those systems responsible for acquiring information external to the child are limited in the extent to which they can affect the rate of information flow. There is stimulation available to them, but their degree of autonomy is low. Full richness of stimulation and opportunity to influence it by personal action will only come after birth. It is this information about external change that allows for the development of a sense of "other-ness", that there is a phenomenal separation between seer and sight, and thus a sense of identity. The child is then born with some knowledge (ie memory) of the capacities of its limbs (even if in a low gravity), through the sensory feedback of the movements of its skeletal muscles and the consequences of the rhythmic flexion of diaphragm and oesophagus. It has had the opportunity to develop a limited action potential. It is not yet conscious, though it has the capacity to become so.

Fourth postulate: the development of consciousness in the neonate is the acquisition of memories relevant to the consequences of the actions of its body's muscles. The actions of the muscles (including those directing the gaze and powering the voice) are controlled by feedback from the sensory systems in relation to their capacity for sensitivity. The sensitivities have an upper and lower level of tolerance and a range in-between where the rate of information flow does not require modification. Too much information will 'motivate' the child to reduce it. Too little will 'motivate' the child to increase it. In this case, 'motivation' is intended to refer to an external label for what in an adult would be seen as intention, and be presumed a function of consciousness. However, here what is being labelled is an unconscious learned response of the perceptual

system. For example, the child learns by experience that moving of the head alters the rate of information flow by way of the eyes, and often of the ears also. So, where a rate of information changes beyond a point of tolerance the alteration in neural activity causes inhibition/disinhibition in a more general process of arousal. The exact consequences of this arousal, what the child does to restore the rate of information, is learned. What is innate in a child is the capacity to remember, to associate input (one experience) with another. It is 'feeling', the recollection of previous experience that is at the basis of both consciousness and thus emotion. Consciousness arises as the memory of contingency between different forms of sensory information accumulates.

A learning approach to cognitive development does not necessarily imply a simple S->R learning paradigm. This is a result of a confusion as to the necessary externalization of an action/behaviour for it to be so called (it must be seen to be believed). Thought is active, as perception is, and just as much as movement is. Moreover, the description of the S->R paradigm as simply the connection of reflexes fails to see what the response actually means to the person who is responding. To view a response as something that the body does independently of consciousness is not only simplistic dualism, but does not acknowledge that the means by which the learning actually occurs is through the observation of the response (either visually or proprioceptually) by the respondor. A response that is determined by reference to the previously experienced correlations between contingencies. Therefore, it is not S->R that is involved, it is S->S, the appearance of one contingency evokes the person to construct another contingency, to bring about a change in the environment to match a personal intention. Stimulus leads to stimulus. All action is initiated to create a particular pattern of contingency, concordant with intention, and

so fundamentally allied to consciousness. What the infant does when it acts is to produce for itself a particular kind of sensation, of input. What a child learns is that, more often than not, one form of sensory input (say of muscular action) is followed characteristically by another (say visual). So, the sensation of raising the hand is generally followed by the sight of the hand coming into view, if the sensation continues for long enough. The initial learning is learning to control how the rate of information can be modulated. This control is based on negative feedback, ie will continue so long as a particular state does not exist. As to what states of sensation the infant will bring into being depends on what it is capable of doing, depending on what it has learned so far, and the principle of novelty. Novelty represents the condition where the rate of information flow falls off, and the infant acts to modify it. What constitutes information depends on learning. Novelty is experience-based, definitively. What constitutes a tolerable rate of information flow is highly subjective, but novelty and boredom are undeniably great sources of reinforcement.[6]

In the apparent feedback-based organisation of behaviour there is capacity for self-organization in a manner that appears teleological, but actually takes its structure from the opportunities and constraints that it encounters. The principle underlying the self-organization of behaviour in the neonate can I think be encapsulated as: 'seek and maintain'. All behaviours are exploratory because of their naivety. Even crying is exploratory behaviour. All control of sensation is active, so that where sensation moves out of a tolerance range there is arousal to bring it (where

---

6 The use of terms here is perhaps loose, and possibly open to ambiguity. But all terms are loaded with meaning and finding words that are totally neutral is exceedingly difficult, if not impossible. Inventing new terms is equally pointless, and I believe that these terms do communicate what I intend, even with the intrusion of personal differences in absolute meaning.

possible) back. Looking is active also. The infant seeks out information in its environment, at least, that is how an adult observer would describe it. At the infant level, the visual system is being modified according to the rate of information flow across it so that an acceptable level of change is being maintained. The change here referred to is inhibition/disinhibition of the cells of the visual system.

The choice of which aspect(s) of the action system/sensory system to exercise at any one time depends on the capacity of each to provide information/novelty. At birth, all action in this new environment provides a great deal of novelty, the co-ordination of the limbs has to be adjusted to meet the demands of the new gravity, the auditory system has to adjust to higher frequencies and amplitudes than it is accustomed, light is brighter, there is more detail and it moves with greater speed across the retina than before. But this changes quickly, information rate stabilises for most aspects of the sensory system, and will stay the same for quite a while. The information rate for the visual and auditory systems, however, will take a long time to stabilise, if ever. The greatest source of sensory change becomes the eyes, and these become the focus of attention.

Adaptation versus Preparation - Plasticity

The random shuffling of genes in sex provides the raw material of variety that the pressure of life sifts and selects, advancing the best by virtue of 'good breeding', so that the infant enters the world well prepared for what it will encounter. The incorporation of data on the general nature of causality into the genotype is seen as a great head start (if not essential) for a new-born. But is this necessarily so ?

One point of view would hold that it is advantageous for an individual to enter the world with predispositions to actions that will yield personally

favourable outcomes, for example to avoid on-coming objects, to attend selectively to salient events such as noxious tastes or the faces of care-givers, to be sensitive to particular frequencies and groupings of sounds (so as to facilitate the acquisition of language), or to have the 'deep structure' of natural language encoded into innate neural structures. One could then be prepared, anticipate, so as to better utilise the pleasures and avoid the dangers of the world. Put in this simple way it seems difficult to disagree with, and it would appear that, intuitively, the evidence supports it. Infants develop through a predictable pattern that seems so set and consistent that the underlying cause must lie at the most basic level (i.e genetic) and be irrelevant to the prevailing environmental contingencies, other than that they support the path of growth that they are unable to alter. The rapid speed of development, for example the acquisition of vocabulary, would suggest that some predisposition must exist for this ease of acquisition to be explicable.

Infant development, however, is perhaps not as consistent or predictable as we might think. Nor is it really certain that children are born with as many capacities as we might assume, but rather may adapt themselves to the pattern of the world around them, and acquire those habits which we could quite easily assume to be innate. Parsimony and necessity are the factors to consider here, as touched on earlier if there is no differential selection pressure bearing on a set of attributes (or capacity, behaviour, aspect of morphology) then there is no logical reason for the possessor of a particular attribute to gain any reproductive advantage. Hence, there is no reason for the frequency of occurrence of this attribute to increase in the population. Conversely, if an attribute is maladaptive, then its occurrence can be expected to decrease in frequency. It is of interest, though not necessarily of overwhelming significance as evidence, that supposed

evolutionary advance in the animal kingdom (from protozoa to human for example, or better yet from prosimian to human) is parallelled by a reduction in the proportion of instinctive to learned behaviours in an animal's repertoire. This is matched by an increased necessity for parental care as the ability of the new-born to provide for its own wants diminishes. In the human infant this is present to such an extent that the child is often thought of as premature. It is argued that this can be traced to the finite pelvic diameters of the mothers so that to match the increased brain (and skull) size of the human infant (as compared to hypothetical hominid or simian precursors) the child must appear 'preterm', else risk the death of the parent through being burst asunder by the limitations of flexibility of the pelvic aperture. It can then be argued that if it were physically possible for the child to be born 'full term' there would be no apparent acquisition of abilities, merely a short practice session before launching into life as a toddler. Against this idea, it must be pointed out that the trend to neotony in infants occurs prior to the restricting influence of skeletal architecture becoming apparent. In the higher primates, such as gorillas or chimpanzees, there is a great need for parental care and for the infant to develop skills, without the routine practice of caesarian birth. In the fossil record for skeletons of early hominids, apart from the overall size of the individuals, the pelvic girdle does not show a proportional enlargement consequent to any increase in observed tool-use or other possible indicator of cognitive development of the race.

"In spite of all [the] advantages of man over animals, it is doing him honour to place him in the same class. For, truly, up to a certain age, he is more of an animal than they, since at birth he has less instinct. What animal would die of hunger in the midst of a river of milk? Man alone...he knows neither the foods suitable for him, nor the water that can drown him, nor the fire that can reduce him to ashes" De La Mettrie, 1748.

The advantage that a successive abandonment (or rather, lack of adoption) of instinctive behaviours has in favour of learning can be seen in adaptivity and flexibility. Instinctive behaviours commonly exhibit stereotypy, are automatic and often preconscious (Dixon(1981)), and task-specific.

"...the environment exacts a price for the survival of the fittest; it captures them." Bronowski, 1974.

It is notable (but again, not definitive) that conscious and preconscious tasks compete for the same finite attentional resources, so that the presence of one precludes the other. However, an argument based on the concept of limited cognitive resources (even given personal experience of the apparent finite capacity of short-term memory) must suffer from the fact that we do not know what the 'dimensions of' thought' are, so that an increase in consciousness cannot necessarily be said to imply a reduction in the 'capacity' for automaticity and instinctive action in much the same way that arguments against an analogical basis to memory representation that hinge on finite memorial capacity must also be seen as less than totally compelling.

Up to this point there has been a successive descent through a hierarchy of complexity and scale, from the large units of behaviour, through thought, and down to the level of basic requirement, the hypothesised 'minimum substrate'. The goal has been to go as basic as possible, to see how much pre-ordination of structure can be eliminated and still feel that it is plausible that the framework of reason will come into being. This is not reductionism. It is not the same as attempting to explain a 'high level' behaviour by describing the individual parts in minute detail, down to the neuronal. This may describe a behaviour, but it does not explain it. As

opposed to this, an attempt has been made to describe what the least requirements might be for the development of a more complex pattern of co-ordination that we might refer to as 'higher' behaviour. The most appropriate level of explanation is not always the most detailed.

Having outlined a possible contender for the 'least requirement', we need to ascend and examine how the acquisition of successive structural forms, stages if you like, come to form into the adult condition of cognition and emotion, and how the pattern of the minimum substrate is reflected in later behaviours.

Having suggested the tolerances of the sensory systems as the initial influence on the co-ordination of action we need to examine how the diversity of potential co-ordinations between the sensory and motor systems evolve into a phenomenally unitary element of the self. How does all of "Me" become just the one of "I"?

The Singular Nature of Attention

As much as consciousness can be described as forming itself through the acquisition of experiences, at the same time it also comes into its structure by a process of 'systematic forgetting'. This is not meant in the sense of random loss of access to previously-known events, but an orderly decrease in awareness of that which is often practiced.

Attention is phenomenally unitary. We have in attention the singular aspect of experience, a central focus in our awareness that tells us that we are unitary in our essential nature. I know that I am a single entity because I am only aware of the experience of one thing at a time. I am finite in my ability to perceive, there is a limitation on my experience, and this limitation is how much can 'get through' the pin-point channel that conveys reality. (phenomenally speaking). Is it possible that the experience

of a single point of awareness can be described other than as the result of a single entity that is "I" ? Further, is it possible to describe the single focus of attention as being acquired by experience, as having it exist as a result of some aspect of the relationship I have with the way things occur in real life?

Attention is 'held' as the result of one of two possible causes: stimulation in a sensory modality by environmental change that exceeds physical tolerance (ie a loud noise, bright light, sudden movement); or as the result of a decision-making process that actively directs the perceptual system towards that which will yield the greatest level of information.

Awareness narrows with habit. It is an assumption in our understanding that conscious awareness, or attention, is finite in capacity. This is synonymised with a hypothetical limitation on short-term memory. This personal experience is indisputable, but does the limit of our attentional focus on one modality of sensitivity at a time stem from a pre-set separation of modalities prior to birth, or can it be described as arising through the gradual automatisation of cognitive processes over time? Could this narrowing be seen as a consequence of the fact of sensory adaptation?

The modality that 'occupies centre stage' for most of the time is sight. Sight is where the greatest degree of novelty lies and hence the least adaptation. Attention is the phenomenon involved with the comparison of the experience of current events with the memory of past events, and occurs when a sensory event occurs that does not fit into a schema constructed by prior personal experience. Attention is where there is an imperfect 'fit' between current and past, and new connections (ie memory traces) are 'laid down' to reconcile this. That is, a new memory is formed

of this present experience of 'lack of fit' and its consequences, which will in future form part of the chain of events of memorial comparison that is referred to as a cognitive schema.

Consciousness is a process of on-going self-reference, a constant reaffirmation of its own existence, shaped by the personal relationship that exists between perceiver and perceived. The consistency of personal identity comes then from the consistency of reality. Where it differs, where there is novelty, there is the phenomenon of the formation of novel memory that is awareness/attention.

Consciousness is the effect of the quest for novelty and is defined by experience. Being defined by novelty, the constituents of consciousness are in part determined by the prevailing environmental contingencies and these are themselves in turn defined by what is currently novel according to prior experience. Thus we have a classic tail-biting dialectical relationship in the Hegelian sense, with the concept of novelty having the seeds of its own non-self, being defined as it is by what it is not, that is, the pre-experienced. The development of consciousness and its current form are defined negatively. The environment-defined nature of consciousness can be most clearly seen in how it 'ceases to exist' in the absence (or indeed the excess) of novelty. Sensory deprivation inevitably leads to sleep, shock can lead to a faint, sudden urgent demands can 'push consciousness aside' as evidenced in the 'reflex actions': the hand to the face to protect the eyes; the leap to the chair to avoid the scurrying mouse. Consciousness is a very difficult thing to define, and any definition I choose to put forward will of necessity be delimited by the purposes to to which I wish it put. It is not possible to concoct a description of consciousness that is satisfactory, or can give a correct impression of what it 'feels like' for a person to be conscious. That is the ultimate in personal, individual, phenomenal experience. All

one can hope to do is to circumspectly describe what the position of consciousness might be in the action system that is a person. But, as earlier outlined, the unity of consciousness is an illusion, it is not consciousness that is unitary but rather the perspectives of action and the inevitable dualism of phenomenal experience. Because our experience of ourselves as actors in the world involves the belief that 'this body is me', and everything not of this body is 'something else'(negatively defined). The fundamental division in experience is the 'inside' and 'outside' dichotomy of me and the world. The construction of a 'social self' comes when one realises that there are other 'me"s in the world.

The personal experience of awareness/attention can then be equated with an effect of the 'quest for novelty' in perception. Included with this is the experience of attention focused 'internally', on the products of one's experience held in memory. This is a possibility that arises most fully with a sense of self, and the development of internal conversation in the act of thought.

Where there is novelty in two modalities simultaneously (or physical tolerance is exceeded in both at the same time) we have confusion, which is normally resolved by the deliberate selection of the source of stimulation that experience reveals as the most likely to be significant. If this choice cannot be made because of equal novelty, that is a lack of immediate referents for either, then confusion occurs and panic may set in.

Attention narrows because of two phenomena that are linked. Firstly, schema formation with experience removes the necessity to formulate decisions for most instances of sensory stimulation. This 'cognitive adaptation' reduces the number of sources of potential novelty in our

experience. Secondly, events that we experience occur to us, in the main, in one modality at a time. It is seldom that we are required to consciously attend to things in more than one modality, and when we do, we do it badly unless there is previous experience of this particular co-ordination in which case cognitive schema will remove a lot of the experience from awareness.

Does this account actually cover the unitary experience of attention or does it rely on the fact we are limited by physical connection in our experiences? To clarify, if we say that we generally only perceive novelty in one modality at a time, is this a reflection of reality or the fact that pre-set limits on attention (ie genetically set interconnections) determine that this will occur? Is this just a very basic tautological trap?

Where the unitary nature of attention lies as far as the physical architecture of the CNS is concerned is that, in any one modality, only one memory trace at a time is laid down. In a particular modality of sensitivity, response states are mutually-exclusive. That is, given a range of possible states 1 to 4 for example, if the system is currently experiencing state 2 (e.g. the colour Blue) it cannot be in any other state. Experience is singular (though the range of possible response states may vary with experience), and memory is created according to experience (one does experience hallucination and acts of imagination). The most significant event is the one consciously remembered. Associations with that event that are said to be made 'unconsciously' can be seen as the effect of the active schema at that time, which while not consciously attended to, act in parallel. If these 'unconscious associations' were the greatest source of novelty then they would be the ones consciously laid down as new memory. Something which is not novel is thus (definitively), because it has already been

'recognised' in memory, and therefore does not require attention, and certainly does not need to be 're-written' as a new memory trace.

Seeing attention as other than a 'mechanical' phenomenon or the result of the existence of some single physical entity is intuitively difficult to swallow. Further, it can be asked does it actually have any value to define its non-existence in this way? That is, why bother?

Attention viewed as an entity invites interpretation as merely a synonym for the soul, and creates the potential for it to be akin to an homunculus or some other observer in the head who views the workings of the perceptual apparata and selects which is worthy of inspection. Attention as a 'thing' is a return to Cartesian dualism. Attention as the label for the experience of the process of the formation of novel memory is, however, an intuitive threat to personal identity, a further step toward removing structure from our selves and relying on the course of experience to grant us reason. Personal experience demands a sense of 'identity' and balks at accepting the notion that a current experience like awareness might be reduced to a mechanical process. Reluctance aside, the alteration of the characterisation of attention away from some sort of neurophysiological 'filter' system that directs the limited processing resources, as it is often conceived of (Dixon, 1981), to a behavioural description of Attention as an effect of the process of automatisation holds value. This lies in its simplicity, reducing the number of entities required for the mind to function and moving towards a plausible account of human consciousness that parallels human experience. if the arisal of consciousness and the structure of cognition can be described by the application of a simple set of rules of a highly plastic structure then this is preferable to a model of consciousness dependent on the interaction of discrete neural entities, cast by genetics and with a lesser capacity for

functional adaptation. The primary rationale is, as ever, necessity. If it can be described more simply then it should be. If it can be found in experience then it need not be carried around in the head. If an entity can be described as an effect, then it should be.

A Pause for Clarification

The hypothesised pattern of cognitive development according to a radical learning approach goes something like this. Firstly, co-ordination between the sensory and motor systems develops (to form 'action systems') according to the experiences that the infant has in how its behaviours affect its sensory experiences. Experience narrows the range of actions the child performs according to the relative change in personal environment in proportion to the effort expended (return, in terms of change, for investment, in terms of energy). The automatization and successive 'disappearance' of aspects of sensory experience from the process of new memory formation because of gradual adaptation to the range of normal 'inputs' gives the phenomenal impression of narrowing attention.

With sufficient experience of the relationship between personal action and its results an awareness of 'self-ness' comes into being. That is, certain sensory experiences only occur when a particular range of sensory experiences precedes them. For example, skeletal muscle feedback from the neck combined with vestibular information of head motion commonly precedes what one experiences as a total movement of the world across one's visual field. Sufficient of these experiences accumulate to distinguish changes that "I" effect, from change that occurs independently of me. When you have acquired this sense of self, which (being pre-linguistic) is implicit, then at the same time you develop a sense of 'other'. Once a sense of what it is that "I" control develops, then social influence becomes possible. This is the primary categorisation, that

there is order (one event follows another), and that some change is created by "Me", and some isn't. The beginning of phenomenal dualism is the minimum element for the development of what we would consider the process of reason, that it, understanding how the world works by categorisation, by knowing what is 'associated' with what.

After the process of learning the gross contingencies of reality and the subsequent development of a sense of self comes the acquisition of natural language. But of course the development of language starts not from a definite point, but simultaneously with the more general process of learning the relationship between the developing self and the word around.

Natural Language and Reflexivism

Language suffers from the same potential problem as "knowledge" when an attempt to define meaning is attempted. This is a problem of determining an absolute point of reference.

To put the problem simply, the meaning of a word in ordinary usage is given by its relationship to other words. Definition is referential. When a word is unknown (ie first encountered) its meaning is given by the careful use, by a person who is familiar with it, of synonyms and analogy. The tool which language uses to analyse itself is language. The meaning in language is self-relational and subjective, the focus of analysis and the method of analysis are one and the same.

The problem then is that if language is to be said to be meaningful, where does this meaning come from? Why is language the way it is, and how is it that different people use it in similar ways? Is the meaningfulness of language derived from the commonality of the underlying physical structures that support it (as Chomsky), and so a product of how the

structures are set in place by our shared genetic inheritance? Or does the meaningfulness of it arise in some other way?

Reflexivism in language is really only a problem when one adopts an 'instantaneous' view of it, a cross-section of language as a finished product (ie adult language use) rather than language in the longitudinal (ie language acquisition).

The problem of the identity between meaning and language, that is, that the meaning of a word is derived from what it refers to is one of imprecision: rather than a word pointing at a clear and definite real-world thing, there is often a number of possible things to which this could refer, and often the relationship between these things is not obvious, other than they can be referred to by the same name. Wittgenstein found for the word 'game', where the things that this word referred to did not share a single feature common to all, other than the name (Lakoff, 1987). This is not a definition particularly satisfying to a philosopher seeking the criteria for establishing truth. Wittgenstein referred to this particular clustering of things with no obvious unifying links, but still with criss-crossed relations, as having a 'family resemblance'. Given that some words do not have a direct relationship to features in the real world he felt that this undermined the concept of language finding its meaning in relativism. If the structure of language does not reflect the structure of reality, then meaning has to be found elsewhere.

The world is an untidy place to live in.

An immediate question here is whether it is a necessary criterion that there be a single structure, clearly definable, to which language should point. This is not to advocate solipsism or radical skepticism, there is one world for all of us, and it is real. Rather, the inter-relationship between

things, and sets of things, is not pre-determined, but comes into being as and how we explore. I stress that this is not solipsism, it's a 'point-of-view' approach. What I am aiming toward is that there is no reason why language should have a concrete structure and a fixed relationship to 'things', because 'things' don't have a fixed relationship to each other either. For example, the classical definition of things living as given by Linnaeus, the fundamentals of taxonomy, was not derived from an orderly listing of features or parts that different organisms have, but instead by how he thought they should be on a gut level (Lakoff, 1987). To him it seemed obvious that certain kinds of organisms belonged to similar groups, and he set out his hierarchy accordingly. The interesting thing is that people agree with it, in the main, but will insist on finer details of speciation according to their particular familiarities. It's a situation familiar to us all as development of a degree of expertise allows us to make finer value judgements about inter-relationships. To an eskimo, a tree-is-a-tree-is-a-tree, but they have words for over a score of different kinds of snow (Whorff, 1956). The Whorffian hypothesis has it that differences in language-use, the degree of specialization in language, is a direct reflection of specialization in perception, and is one of the cornerstones of radical social constructionism (Harre, 1986). Eleanor Rosch in her later work also found that the apparent discrete organization in memory in to prototypes falls apart as the manner in which questions are phrased is changed (Lakoff, 1987). Her original conceptualization of memory structure, put very simply, was based on time-delay studies in decision of category membership, which showed a lesser reaction-time (ie faster decision) for words that are prototypical of particular categories (e.g. sparrow as opposed to penguin for bird (yes/no)). From this she hypothesised a memory structure that had prototype nodes (in network fashion), possessing many features of the category, with other less-

representative members around it. In her later work, however, she asked subjects to rate items on their degree of category membership. According to a view-point of categorisation that has an all-or-nothing idea of set membership, this should be impossible. If set membership is defined in terms of reference to a prototype in a fixed, structured, memory, then quantifiable degrees of birdness, rather than is a bird/is not a bird, for example, should not be possible. Rosch found, however, that subjects felt that category membership could be conditional, rather than absolute.

If we accept that categorisation in the world is highly flexible and that set membership is not a strict matter of possession of particular defining features, then it ceases to be a necessary requirement for 'meaningfulness' for there to be a direct correspondence in the sense of mirroring or parallelism in structure between the frameworks of reality and language. Moreover, this does not have to be transcendent. That is, any correspondence that exists for me need not be exactly the correspondence that exists for you, because language, as cognition, is acquired actively, and in a personal context. The flexibility in what words refer to, the lack of strictness in both language and reality, means that words need not refer to the same thing, just similar things.

Referential Meaning in the Natural Sciences

The reflexivism supposedly inherent in the use of language and the apparent lack of objectivity in Psychology has been pointed at as a serious flaw and the standards and practices of the Natural Sciences, Physics in particular, have been held up as an example of 'good' science. If Psychology could have the qualities of Physics and follow the strict empiricist line, then it would have a much greater claim to be examining the truth. But is Physics so free of subjectivity, does it really work on

objective fact, and what does objectivity really mean? Can objectivity be conditional?

Measurement in the Natural Sciences is held to be objective, using external parameters of description that can be readily viewed and used by all without the possibility of individual prejudice and hence without the potential for reflexivism that comes from using natural language descriptions of events. But within the techniques of measurement there is a referential hierarchy, millimetres rely on centimetres which refer ultimately to metres. The metre has been defined by consensus as a fixed unit whose length relates to an unchanging property of nature, the wavelengths of light. This many complete waveforms occupy a space that is one metre long. Time has been defined by reference to the fundamental unit of the second, which is quantified by being the period within which a set number of caesium protons are emitted by its exceptionally regular rate of atomic decay. Yet, how was the decay rate of caesium determined, if not by reference to a unit of time that was in existence before it? Why choose any particular number of complete waveforms for the fundamental unit of length? How long should a metre be? Practical convenience is the motivation behind structure in measurement. Caesium emission rate was chosen because it was regular, according to current standards of measurement, and because its rate allowed a whole-number of emissions that approximated to the current evaluation of what a second was. The choice was not arbitrary by any means, but it was certainly not objective. If anything it was political.

The basis of measurement of time and distance has a built-in level of imprecision because it was created to match an existing system that was imperfect, but has a wide-spread acceptance. Its great advantage is not that there is something fundamental about the emission-rate of caesium or the

wave-lengths of light, but that these are consistent, and can be used by different people to get very similar results, and have almost the same meaning when used in explanation. Similar, but ultimately not identical. But this is not expected, agreement has been reached that a certain level of imprecision is acceptable, it is quantifiable, and is included in results. Perfection is not anticipated, but instead a certain level of possible variance is good enough. This concept of the unlikelihood of perfection has been taken to extremes in the replacement of the clockwork universe of Newton and the infallible predictability of La Place with the infinite relativism of Einstein and Heisenberg. It is accepted that there are limits on what can be known, and that it is impossible to be absolutely certain, even time and space are relative.

Physics accepts its limitations, accepts that the results it describes and the predictions that it makes are conditional, probabilistic. So why single Psychology out for criticism over something which in the practical world of the Natural Sciences is accepted as near axiomatic? It is implicit within theory that truth is not absolute, but this does not undervalue it, it merely puts it in its place. Even if theory in Physics has a relationship to the reality that it describes that has been decided by committee, planes still fly and bridges only occasionally fall. Even if Psychology uses natural language that can be very imprecise and sometimes highly subjective, that's no reason to reject it outright as a method of investigation. In a fuzzy area like human personality, maybe fuzzy tools are best.

Meaning for Objects versus Meaning for Events

Another objection that has been raised to referential meaning in natural language is the supposed incompatibility between the use of a word to refer to an event, and to an object. Can meaning be derived from reference to something occurring over time and something basically instantaneous?

However, is there a difference, a real distinction between 'things' and 'events', or is one merely a different form of the other? That is, what we refer to as an event is a description of a thing (or things) plus context, where a 'thing' is a thing ostensibly in isolation. What links them, and I think in this instance there is a single feature in common, is that both are perceived: an object is an event, because it is experienced, it is involved in the act of perception. Even such a paradigm of the ideal, thought, is a physical act, an event which takes time. The table is the table one sees, (or imagines). Words, like other events, are learned in context. Natural language (ie first language) is not acquired by memorising lists of words in isolation, but by encountering them, discovering them, in the course of the disorderly process of one's life.

So if we accept that the lack of fixed edges to categories allows that referentialism can give meaning to language, and that this reference can be conditional, a matter of degree, rather than absolutes, then we need to ask how the structure of language influences how we think, and vice versa.

Relationship between thought and language

"We have forgotten what features in the world of experience caused us to frame (pre-scientific) concepts, and we have great difficulty in representing the world of experience to ourselves without the spectacles of the old-established conceptual interpretation. There is the further difficulty that our language is compelled to work with words which are inseparably connected with these primitive concepts. These are the obstacles which confront us when we try to describe the essential nature of the pre-scientific concept of space." Einstein (1934).

In the 'learned consciousness' conceptualization of development, of which the sociogenetic approach is an example, language plays a key role as the means by which an individual gains access to/shares in those experiences that are phenomenally social in nature. By this it is intended

that social interaction, either directly (person-to-person through speech) or indirectly (through the written word), is seen as a form of perception, but not perception of the concrete or material directly, but through the vicarious experiences of others. Language allows communication, and this communication is in the form of externalized metaphors. These metaphors are encoded through common (and learned) social practice in the form of words and sentences. But this is perhaps going too far too fast, some elaboration is required. For example, in what way do we equate language with metaphor, what are these metaphors derived from? And in the use of metaphor is there not a threat of dualism, having a representation of external reality and, moreover, does the form of this representation (or its arisal) equate to prior categories? The avoidance of dualism comes, I believe, with the conception of language ability developing through experience, rather than arising as an inevitable end-product of physical (cortical) development.

Universals in Language and Cognition

The universal similarities that are held by many to exist in the deep structure of language across different cultures is held to point to a common source of arisal in the genetic history of different races as opposed to common elements in their social history. Given the cultural (and geographic) separation of the races that have been the subject of linguistic analysis it is considered unlikely that social interaction could account for the perceived invariants in structure. A particular structural arrangement in the cortex is held to be required to break down the flow of speech into phonemes. The brain must have some form of 'expectation' or 'preparedness' for language use, thought (ie patterns of information processing) must precede language. If one were to take issue with this view, where then would one put the invariance? In the shared genetic

background of all, or a common hard-wiring? Or could one put the invariants in the individual's environment? That universals in language (or in emotional expression) exist does not presuppose that these are solely due to the structure of the individual, but can be seen instead to represent constants in function, in the needs and intentions of diverse peoples as well as common invariant physical relationships represented in environmental contingencies in the world they inhabit. To return to language acquisition more directly, an alternative to a strict genetic determinism is to see language as a spatial metaphor, and that this metaphoric nature comes as a consequence of the source of language ability in the developed structure of cognition. Cognition is to be seen as arising through perceptual action, but of course perception is guided by cognition, and both have their natures determined by the reciprocal relationship between an individual's potential for action and the actions which the environmental contingencies will support. To reiterate an earlier point, perception should not be seen as a channel that passes information 'from the world to the mind', but as an act demonstrative of the reciprocity between a person and their environment.

What is being suggested here is that the patterns of thought that one has (referring here to non-linguistic thought) is a function of the physical experiences one has in the course of development. It is further to suggest that the manner in which one categorises is based on one's life history, and the nature of categorisation is not predetermined, that categories are not objective aggregations based on determining common features or necessary elements. Rather, they are contextually and personally determined on the basis of one's abilities and prior beliefs (if any). Why the emphasis on categorisation, you might ask. As Kant puts it, we are driven by the categorical imperative. Human thought can be seen as a

process of decision-making, of performing a current act on the basis of the outcome of similar acts under similar circumstances, in the past. Note the use of the term 'similar'. What a thing 'is' is determined on the basis of what a thing is 'like'. In other words, the category into which it falls determines its 'thingness'. But of course, this is not necessarily an all-or-nothing process. It is not essential to have strict borders to categories, things can (and it would appear tend to) have degrees of category membership on the basis of their degree of relative 'thingness'. Rosch (1978?) equates relative set membership with perceived similarity to an abstracted prototypical member of that set. The process of abstraction (according to Lakoff 1987) is performed on the basis of subjective relationships, that is, the significance that a thing (including an event) has for the individual who is experiencing it.

Two premises have to be accepted (or at least, not rejected) here. First, that cognition is a process of categorisation, parsing experience and forming intentions (ie selecting an action) on the basis of experience; secondly, that this process of categorisation is subjective. That, while the world has a real existence, experience of it is personal. Cognition here is still being used to mean pre-linguistic (or rather, other than linguistic) thought, but the ideas apply as well to linguistic (self-conscious/conversational) thought. In fact, logically speaking it must, given that the goal to which this is intended is to show the possibility of linguistic thought arising out of the learned functional pattern of pre-linguistic thought. But the pattern of cognition that forms as a result of physical experience does not have to be conceptualised as a 'copy' or a 'mirroring' of the world. Internalization of the contingencies of the environment is not passive, it is an act, a dialectical process.

Thought is not a neurochemical process.

The human desire for 'objectification' underlies the philosophical arguments over the nature of the relationship between a person and their environment, the so-called Mind/Body problem. The reason for the disagreement can be seen to reside in the unfamiliarity of the holist solution offered by the emergent materialist or the neo-hegelian approach. A solution other than to separate mind and body (person and environment) is counter-intuitive, it necessitates a conceptualization of the relationship that is frankly irreducible to known concepts or pre-experienced entities. It is a description that defies reason because of its highly abstract nature, in many ways similar to the recursive self-definition of mathematics (more on that later...). It is the concrete nature of human reasoning, its insistence on an appropriate analogy to a real-world situation or entity that creates the difficulty in accepting a dialectical account of human experience (and development).

Why pursue this line of argument, what is its relationship to emotion behaviour? The relationship between a person and their environment, their mind and their body, as described by a dialectical process does, I believe, describe the nature of emotion. Emotion can then be seen as a process across time, not a structure preset, hardwired, genetically determined, but a function of the reciprocity of action. Thus with consciousness also. The problem of how a non-material emergent structure such as consciousness (or 'mind', or 'self') can affect material entities such as neurons or the nuclei of atoms ceases to be a problem if a structural definition is abandoned and a process definition is adopted. By a 'process definition' I refer to what would generally be generally termed a behavioural account. But, as Mandler (1984), I would prefer to refer not so much to behaviour as 'action', given the connotations that the former

term has, such as a denial of a role for consciousness in the organisation of action. To be clear, the advocation of a process view does not suggest that there is no underlying physical structure for the action of consciousness, but rather that to equate a particular action necessarily with a particular physical organisation is to risk confusion of structure and function and to revert to simple representationalism, seeking objects in the head or pictures in the mind's eye. Physical reductionism (meant here as seeking the nature of thought solely in the structures of the brain) will not yield any more information than a context-relevant description of action. Even if it were possible to describe a particular thought in terms of neural activity and electrochemical functions, what purpose would it serve? Thought is not a neurological phenomenon. Thought occurs only in relations. Thought is about things and of things, when you describe a particular pattern of neural activity that is exactly what you are describing, nothing more. Thought is an experience that a person has and it gains its existence in a relationship, in action, not in an independent skirmish of tissues. Emotion also is not a neurological or physical process. Emotion is a social phenomenon, one that exists not so much in as of a relationship, in particular the reciprocal relationship between a person and their environment. Emotion is something that happens to a person, but is something that a person does, it is an action.

To reiterate, thought is not neurological. Defining thought so as to include its referents might be seen as simple pedantry. In what way does this recognition of the context dependent (and determining!) nature of thought assist in its understanding? The reason for this is to demonstrate the delimiting nature of human language on the process of imagination. Defining thought as a social act, or memory as social, is disturbing. Our need to see the world in terms of things we are familiar with is pervasive.

We prefer to give these very personal acts a unique position in space (peferably inside the head of the actor), and a concrete structure (preferably an organelle of the brain). Even our spiritualism has a concreteness about it, energies, spirits, higher planes of existence, all things in motion. It is very difficult using language to describe these types of relationships (ie the material dialectic), given the grounding that language has in the internalized causality that is cognition. Even when language is used abstractly, to describe other than physical events, the relationships between words (as embodied in syntax and grammatical rules) predefines and delimits the content of communication. Even coined words, neologisms and jargon have only a relative existence and only an illusion of independence or freedom from the constraints of convention and social custom.

Does Consciousness exist ?

For a person to be conscious does not require that they possess consciousness. A person can think without having a mind 'full of thought'. In considering the nature of cognition it is necessary to swiftly come to a personal decision about whether you are prepared to entertain metaphysical entities lumbering around in your descriptions, or reject that the mind is in any way composed of other-than-physical stuff. A firm decision about dualism has to be made. If you accept it, then you concede the possibility of the mind existing as an unknowable aspect of spirit, and have a convenient bottomless bag into which to fit your hypotheses about models of mental action, and, moreover, you will be unable to decide between competing models that claim the same mental status and fit the observations equally well. It is here that the statement that consciousness does not exist becomes more significant. With a rejection of dualism and the convenience of ideas such as emergence and gestalts, you move away

from a consciousness which can be possessed, or be a 'property of conscious thought' to a situation where consciousness becomes people thinking and acting. The concept of consciousness is not necessary for the systematic description and understanding of human life. We use it because when we question what and who we are, seeing ourself as a discreet and indivisible entity, we seek for a single discrete label for all those actions which we perform which others are not (and cannot) be privy to. Our thoughts are our own, as the thoughts of others are theirs. What we see in consciousness is that thing that produces thought, we seek a single agent for what is seen as a single action. If other people also think (and I believe we tend to assume that), and they are singular, then I am probably singular too. Looking for a single agent for a single action we arrive at the concept of consciousness to provide a name that we can attach to what we feel must be there, that unique aspect of ourselves beyond the strictly physical. Consciousness is an artefact of the need to communicate, and the grounding of language in metaphor. Verbal labels relate to single entities, the very term 'group' refers to a single entity, collectives are individuals. We count a herd of wildebeest as being one, even though it may comprise a million individuals. This collectivisation is merely a convenient effect of our use of language, and is artificial, a product of the way in which the tools that are used shape what is found. There is no unity in reality, trees, buildings, chairs and fish all fall apart, are all divisible into their parts, and those parts into parts, and who is to say that all atoms are created equal?

Consciousness does not exist, instead people think. Likewise, emotions do not exist, people feel. The denial of the existence of consciousness is a statement about the ghosts we create for ourselves.

Perhaps paradoxically the way to transcend this limitation has been to abandon language (in the form of words and their meanings, ie statable facts) and revert to apparent pre-lingualism, to 'insight'. Thus the progression through stages of intellectual development is circular, and we teeter on the brink of mysticism once again. Once more we are close to postulating a non-material 'stuff' that is higher thought emerging from language but not dependent on it for form. This I would like to avoid at all costs. Rather than a thing which is 'unknowable', we have instead an acceptance (or acknowledgement) of a relationship that exists beyond the current context of definition, but exists none the less! I'll try to clarify this. In the situation where we are prepared to say that we 'know that something is', but cannot 'put it into words', a number of possible explanations appear: our personal vocabulary is insufficiently broad to possess the label for this thing (our sense of self is too narrow); its nature is so highly abstract that it cannot be related to anything in shared perceptual experience (lack of social metaphoric reality); we are blessed by divine inspiration; that 'knowledge' which we 'possess' is present only in preconsciousness, that is, as part of an automatised action schema (more on that later) and can then be only inferred to exist by the observation (post hoc) of knowledge dependent action.That we say we can understand a very abstract idea such as that of thought as a dialectical process is to express a belief that such a statement is true on the basis of our belief in the validity of logic. In our 'understanding' of the meaning of thing such as dialectical processes we progress through stages of logical inference, "if this is so therefore so must this", and are in a sense using a metaphoric/analogical process, but the structures against/from which we are forming the metaphors are not directly real-world objects, but metaphors themselves. There is then a hierarchy of necessary

substantiation, the lowest of direct perception, the middle of metaphoric speech acts, the top most of abstract conceptualization. But note that the form of the hierarchy is determined by its grounding in direct, phenomenal, experience.

Mental Entities as Social Metaphors

Deliberately adopting a stance where the use of metaphoric entities in describing consciousness is avoided has the potential for major headaches. Entities are a convenient means of abbreviation, a short-hand method for lumping a complex set of descriptions under a small number of headings which are then assigned 'properties' according to observed effects, much in the same way as gravity is a property we assign to large bodies. Consciousness is similar. We have Memory, Emotion, Cognition, Attention, and so on. These abstract concepts, as discussed before, have their meaning only in as much as they refer to something concrete.

"...images are come from the concrete world of our senses, because that is the only world that words describe. But all our ways of picturing the world are metaphors, likenesses that we snatch from the larger world of eye and ear and touch." Einstein, 1936 (in Bronowski, 1974)

When we discuss abstractions, the properties we assign to then relate to the concrete events that they point to in our personal experience. Attempts to talk about these entities as events , rather than as things, creates a problem the basis of which lies in linguistics and the limitations of reference.

It is important to remember that this short-hand way of conceptualising reality is a strength, and not just a draw-back. That a word can refer to an event, so that a memory of an experience in one modality can evoke memories in a variety of other modalities, is quite a feat. Being able to break the complexity of an experienced event down into a single word is a

great time-saver, to say the least. The construction of categories and the use of family relationships to understand the common elements in reality is fundamental to cognition. That it is not infinitely flexible is inevitable, for a number of reasons, eg there must be consistency in what is referred to; sets have to have a finite point of delimitation else they are not sets (ignore fuzzy set theory for the moment, that is different to the common understanding of a set); and as there is individual differences in people's experience, hence the events referred to will never be of a perfect match.

If one does attempt to step outside the entity approach and describe the 'thing' as an 'event', for whatever reason, one runs into problems of diluting a definition by over-precision. An excessive attention to minute details can broaden a description to the point that it ceases to have utility. This is analogous to the set without finite borders, and is a result, once again, of the reflexivism of language. But it is not inevitable. It is a matter of knowing when enough is enough. As to whether there is an objective value for this, I think not. If communication is satisfied, that is if there is consensus, and the point is conveyed, then common sense is probably good enough as an arbiter. The common understanding and depth of knowledge in the communication situation will put an appropriate constraint on detail.

This thesis itself is an example of an attempt to provide an event description for an entity, in this case Emotion. Within it, there has been a successive beak-down of the constituent entities of language, feeling, and consciousness into events of personal action. Further, the basis of development of each of these entities has been examined from the viewpoint of self-organisation through necessity, rather than by reference to an actual unique physical entity such as the gene. At all points there has been a risk of over-description, while at the same time running the risk of

over-simplicity. The two appear to go hand-in-hand, paradoxically enough. By removing the guiding influence of genetics you risk losing the stability of a logical intent behind the direction of development, and increase the unpredictability of its final nature, thus the number of possible end-states proliferates. At the same time, the implication that there is a commonality underlying all forms of behaviour, that is, action is performed to maintain a 'status quo' which is then changed by the results of this action, seems simplistic in the extreme. Chaos and simplicity, an unlikely partnership, but not an unacceptable one.

The inevitable question, as I see it, that arises from this line of reasoning is: how far to take it? Is it reasonable to go to the logical extreme and assert that all cognition arises out of active internalization? Obviously, to be internalized, there must be something to do the internalizing. What is logically required for internalization to occur? Briefly, it must be possible to acquire a memory of an event, to access that memory on the basis of current context, and to make a decision on whether or not to repeat the action(s) performed previously. That is, did the previous action(s) under these conditions lead to a 'favourable' outcome? One must choose between possible actions on the basis of current intentions. It can be seen from this hypothetical minimum function set that one's 'picture of the world' is very undetermined. If your sole birthright is the ability to compare, but not any standards by which to make comparison, then it is the pattern of interaction between you and your world that will construct the functional relationships you possess. That is, the range of possible action choices is determined by your (recalled) experiences of actions and outcomes (remembering that the perception of an outcome is itself an action, thus it is recall of action that is involved, not a person acting *on* the world or *in* the world, but rather *of* the world). Pre-linguistically, you are

only able to do what you have done, or to be more precise, what you have experienced as capable of being done. That is, you can observe the actions of others or note the effects that random (ie unintentional) action has on your environment. It can be seen that the common patterns of thought (ie categorisation) that people possess can therefore be related to their common experiences. And what is common (ie invariant) to these experiences are the properties of physical objects and the physical structure of the active individual. It is a prediction of the approach that persons who do not share the same experiences of the world will not share the same patterns of thought (internalized causality). Evidence for this comes from the developmental patterns of congenitally blind and congenitally deaf children, where there are lags evident in their development which would appear to correspond to a lack of experience in active exploration. Of course, this is highly confounded with social factors as well as the nature of the disability. Further, the cause of the disability may also have effects on development other than to restrict experience. There may be damage or underdevelopment of the cortex associated with the condition. As an example of social confounding factors, it is accepted that a lack of physical contact between mother and child post partum can effect the degree of parent-child bonding, leading, it is believed, to an emotional deficit (ie child feels unloved, is timid) which can affect its willingness to explore or to express itself. It is noted for mothers of blind children to avoid physical contact initially, which can disrupt attachment. Parental over-protectiveness can prevent the child from a full range of physical experiences. A child (like any sensible person) is lazy. It will do what it must to achieve its ends, but only as much as is necessary. Where an over-attentive parent obviates the necessity for action it will not occur. If everything it requires is brought to it that can result in a delay in learning

to walk or even to reach. But for a child it is not a case of what is not practiced is lost so much as what is not attempted is not attained.

Parallels between spoken language and other overt behaviours. Language is given almost a unique status in our understanding of human cognition. It is often seen as that aspect of our species which gives us the right to deem ourselves 'sapiens', and is held almost in reverence, its complexity and the unlikeliness of its spontaneous arisal seen as akin to proof positive of the existence of a divine hand and a singular destiny in human evolutionary history. But is it so unique? Hoping as ever to avoid dead-end quibbling over definitions, I mean here language as the spoken, communicative act, which may or may not engender human consciousness; the ability to communicate abstract concepts through the encoded transmission of intentional sound structures. What language comes down to at basis is the ability to recognise units of speech that are heard as mapping onto units of speech that one produces, and vice versa. The recognition of family relationships between remembered auditory events. It can be argued that language is more than this, that it involves the intention behind the act, the motivations, the meaning, but is that language or is it context? At the risk of inviting an accusation of hair-splitting and/or pedantry, I would say that language is the *process* of inter-relationship between events in memory (without speculating on how this occurs), whereas intention is the relationship between the events themselves. Yes, language cannot/does not occur without intention, but the two are distinguishable.

So far in this thesis I've been putting the view that individual consciousness, referred to as the social self, is language-based, that it consists of language, is an on-going conversation of the self <u>with</u> itself in relation to current context which is determined by the external

environment or consequences thereof. Now, I'd like to reverse that and say that consciousness is much more than that, and the social self is a minor player in awareness. To be brief, I would restate that language and the ability to acquire language are not genetically determined. What is genetically determined is the ability to form family relationships between stimuli both within and across modalities, synesthetically, and that language is a set of stimuli socially constructed, and transmitted historically in the lives of people, rather than being encoded into cellular proteins. Consciousness, awareness, is an on-going process of conversation not just in terms of auditory representations but kinesthetic information, proprioceptive, gustatory, a continual firing of nerves and a passing on of dynamic information about states. Conversation encompasses more than a quiet chat. The learning of language and the the acquisition of physical skills can be parallelled. In the acquisition of a new language, or of any new word, a conscious mapping process occurs between the auditory symbol with which one is familiar and the symbol which one is trying to learn. With time, as practice reaches such a level that the mapping becomes automatic, one begins to 'think' in the new language and awareness of the mapping process ceases. In the acquisition of a new physical skill a similar sequence of events occurs, an action-sequence (schema) is consciously constructed out of the 'parts' of skills that one already possesses. These are practised until the sequence becomes a unique act in its own right and the parts from which it is formed merge into a single whole. In language, auditory input and verbal production, which in the understanding of speech are inseparable, put units of speech competence (vowels, consonants) together to form new combinations. These derive their intention from the family relationships of the contexts within which they are produced. The uniqueness of language is that its usage creates within the overall murmur of internal 'speech' a single

entity, the social self, the "I", which derives its singularity from the fact that unlike the other voices of the body it has come into being through its direction 'outward' to effect changes in the environment at a distance. Consciousness is more than language, without language people can still function, can still learn, stand, run, feed themselves and reproduce. And, just as there is more to consciousness and awareness than whatever is the current focus of attention so is there more to "Me" than "I". In terms of "I", the social being, the "self-aware self", internal dialogue is all that I am, but in terms of "Me", there is much more. "I" am one aspect of the totality that is "Me", and it is "I" that has emotions, even while feeling is part of "Me" also, because it is "I" that attaches the labels.

All this use of I and Me is confusing. To clarify, when the Social Constructionist view-point states that emotions are socially constructed, what is meant (broadly speaking) is that the labels that I choose to use and the situations in which I use them, are a product of the language that I use (and its available range of labels), in combination with the socially-derived rules of conduct that comprise an individuals' moral code. It is not essential to this viewpoint that one has an opinion one way or other on the nature/nurture question of either language or consciousness. The commonest view is that of the basic range of feelings, that are genetically determined, which are modified by experience into the diverse options of emotionality (for instance, Ekman). From this it follows that a sense of self is present from birth, one is pre-disposed to particular behaviours which form the basis of our side of our relationship with our environment. We are then born with a sense of identity, even if we do not yet have the specifics of language to express this.

The function of consciousness

To say that consciousness has a function is perhaps not as accurate as to say that consciousness is a function, though I do not mean this in the sense of the philosophical doctrine of Functionalism. Confusion arises in talking about consciousness, I think, because of an understandable confusion about what exactly is being discussed. This occurs when it is not made clear whether it is consciousness per se that is referred to, or that individual aspect of consciousness which I would define as being the set of beliefs one holds about oneself as an actor in the world, generally referred to as the Self. Following the sociogenetic approach, the self is linguistically constituted, a set of verbalizable expressions of belief by which one is able to make comparisons about oneself as to the relative degree of similarity to some desired, and socially-defined prototype of belief or 'mode of being'. Defining the Self as a set of beliefs has a slightly unsettling effect, resulting again I think from the confusion between consciousness as it is known, and Self-hood. Popular understanding of the concepts make no significant distinction, yet they cannot be used interchangeably. The self, like consciousness from which it is derived, is determined by reference to environmental contingencies, in this case, those of the 'social environment' that is created with the acquisition of language. The self is defined by the holding of attitudes, that is, what the effects of particular events in the world have on us. Our opinions. But not only of events 'outside' of ourselves, but of our own 'mental actions' also, which are 'judged' in reference to standards formed by the active internalization of 'social-environmental' contingencies or principles of the prevailing moral order. Again the same mechanism of dialectical progression, here coming much closer to Marx's later ideas of class consciousness.

The effect of Language dysfunction

"Most people are other people. Their thoughts are someone else's opinion, their lives a mimicry, their passions a quotation." Oscar Wilde.

If language use is the mechanism of acquisition of higher cognitive function through education/socialization, what happens when full language development is impaired?

Evans (1988) in a study on deaf children at a state residential school in the United States, investigated the relationship between the structure of language used (in this case American Sign Language), and the way in which cognition and social concepts develop. He asked the question: if language is the basis of cognition, knowledge and self-concepts, then in its absence, can one be said to think?

" If reality, perspectives and conceptual frameworks are " made up of words "..., is a prelingual deaf child's head empty of ideations? Silent? " Since many writers have defined thinking as." internal conversation "...shall we conclude that a deaf child cannot think? Evans (1988) "

Evans discusses the limitations of sign language in capturing the structure of 'Social Reality', that matrix of symbolic meaning that social interaction overlays on the strictly physical aspects of our environment (though this distinction can be seen as potentially misleading). While sign language can readily accommodate the communication of information of a concrete and literal nature, it has significant limitations with the subtle and the abstract:

" It is a symbol system virtually devoid of metaphors, irony, humour and figurative language because these are 'nearly indigestible' for deaf adolescents...In sign talk literalism and concretism result from the use of visual and sensory data... Evans (1988) "

Evans' work was performed in an institutional environment, and cannot be said to be representative of all deaf people, but it does point to the effects that limitations in language experience, both in quantity and diversity, can have on cognitive development. The institutional existence is one very

much of a world in itself, with its own local culture and context, where experiences are circumscribed, and do not represent those available to the members of the hearing world. Thus there are two forms of deprivation here, of the abstract world of spoken language, and of the range of social experiences that are available to those who have the skills to participate. Reading is also impaired, denying them access to the vast range of vicarious experience contained in literature. This lack of experience in life, Evans found, leads to a difficulty in distinguishing between fantasy and reality, they lack the background to know what is likely:

" ..students with crippled language fail to understand, ie, to know the world. They *see* the world (and especially the televised fantasy world that shows how two men can fight, beat, and whack each other with blunt objects with little damage) but do not understand it. Evans (1988) "

The children know what they see, and only what they see. The symbolic meanings, and the requirements for the suspension of disbelief in fiction, that are linguistically conveyed, and which may in fact not be explicitly stated, can be totally opaque to them, and may not even be suspected.

Young deaf children in the institution also suffered from a ' moral impairment ', and see personal relationships and the dynamics of social interaction in a narrow, simplistic, and rigid way. Evans (1988) quotes an educated deaf adult, who describes the beliefs of the children:

" They say, ' I want to be in the hearing world. ' Because they think it's going to be better. But it's not going to be any better. They don't even know that there's laws out in the world...They think ' out in the hearing world ', that means having freedom. Gonna find a job like this [snaps finger]. It takes no time to find a job. They think that's what the hearing world is like...Yeah, I used to say that myself...I Thought the hearing world was going to be jobs, going to be married, was going to have a car and all of this. It's gonna be a lot of fun. "

Personal relationships between the sexes was seen in a highly stylized manner, all relationships involve romance, platonic interaction was not

understood, and all romance involved sex. This was held to be a result of the interactive models presented to the children by their TV viewing. Quite a lot of blame was laid on the confusion that resulted from the children receiving 'entertainment', but understanding it as 'education', due to their overly uncritical and naive view of social realities, where things are not necessarily as they seem. The symbolic dimension to interpersonal interaction creates the potential for a vast multiplicity of interpretations for any one action dependent on the context that may be conveyed solely linguistically. A lack of access to these alternative meanings for the same actions is a great barrier to comprehension of how social life and the moral order functions. The vocabulary of young deaf children is extremely circumscribed, relating only to the narrow range of experiences that they have personally encountered, in addition to being very small by comparison to those hearing children of an equivalent age. Sign language itself has a lexicon of approximately 25'000 signs, compared to about 1 million for spoken English (Evans, 1988), so the range of things that can be described is drastically limited.

" ...sign language is a general symbolic system that slices social objects into gross chunks. Cosmopolitan English, by contrast, slices the social objects of its cosmopolitan field into tiny slivers. "

The deaf children in Evans' study had difficulty understanding that words can have multiple meanings. For them, with language learning through the matching of a directly-seen object or action with a directly-seen sign, only one such matching makes sense. Further, the application of signs to stand for a class of objects is not easily grasped.

To further complicate matters, the structure of sign language does not match that of spoken English, and has a looser form, using no pronouns, and with much more grounding in the context of the specific conversation

at that time. Imaginary speakers and time dimensions are indicated by reference to spatial positions, and word order is of much less significance. So when a child whose first language is sign comes to learn English they suffer a great handicap in adjusting to the unfamiliar demands of linguistic convention as well as the grasping of the greater needs to deal in abstractions and concepts of which they are likely to have had little or no experience directly.

The significance of a handicap in language development comes with the limitations for the potential experience beyond the direct. What language provides, or rather what it means, is the growth of consciousness through personal action. If we follow the sociogenetic line then not only does language function as a 'bridge between minds', but is the instantiation of personality, 'we are what we think', and 'we think what we say'. Communication with other people is sharing of concepts, an expression of the structure of our 'mental processes'. When we incorporate what others say we also incorporate what they mean, we parallel their thoughts. Of course, as communication involves interpretation and accommodation with what we already know, it is by no means a perfect copy. It is a parallel at best, an analogy, personally constructed in the act of perception. With limitation on communication comes a limitation of the potential for expansion. If we accept that language is referential, as earlier suggested, then we can only learn successively, with step-wise evolution of structure between concepts as they can be related back to our personal experience. If the language that we use is limited in the number of lexical units that it has, then the potential for cross-reference is diminished also. So, the capacity to explain is reduced by reference to a limited set of items and thus the sensitivity of categorisation, the distinctiveness and the total number

of sets that can be constructed to partition experience, is likewise diminished.

With reduced ease of access to communication comes a reduction in the potential for vicarious experience. The experiences of others taken for oneself magnify one's lifetime, and let one live what others have, and benefit from their errors and successes. A diminution in language is an enforced separation from full intercourse with the social environment, and with this opportunity denied then the potential for internalization of social action is cut back, and thus the development of a fully-active social self prevented. The social self, as mentioned earlier, is held (by the sociogeneticists) to be the result of the internalization of social contingencies, much as I have earlier outlined consciousness arising as the internalization of 'physical' contingencies. Where in pre-linguistic infant cognitive development the visual systems were seen as providing the majority of the experiences for the development of consciousness, in the linguistic human the use of language becomes the source of mediation for the internalization of social experiences toward the development of social consciousness. Without this mediation a great deal of the information available in social practice will go unnoticed.

The Meaning of the Social Environment.

What do we mean when we refer to the social environment? What is this thing, that it is being suggested can provide the substance/form/template for the construction of cognitive functioning? Is it part of the physical environment or distinct from it, as an 'emergent entity'? To put it in an appropriate perspective we should keep in mind that the social environment in and of itself does not exist, it is a social artefact. There is ultimately only the physical environment, in which there are people acting according to beliefs. It is the actions and interpretations of people

that constitute what we refer to as the social environment, but the ordinary language use of this term implies something other than what it is, which is a categorical statement applied to simplify reality for social scientists. The 'social environment' label merely serves to identify a particular class of action, that action which is performed by people. In this idea of social action is included the products of action (ie literature, the arts in general, bus stops) as they are perceived by a person. Things that involve communication involve a social act. Things listed as being in the social environment are those that are constructed by society, that is, by people, and hence have a social meaning as part of a particular social act. A conversation, if you will (ref Harre). But this social meaning only comes into being in the act of perception, it is dialectical. Given this approach, it can be seen that all that is required for a 'social environment' to exist is that there be at least one person present, and the nature of this environment is determined by the perceptual capacities (the effectivities) of that individual. The effectivities here are directly related (if not equivalent) to the sense-of-self (personal identity) that a person has. The 'greater' the sense-of-self that a person has, that is the degree of freedom of access to the 'social mind', the refinement of sensitivity, the larger/more detailed the 'social environment' becomes. So the infant, even pre-linguistically, is involved in social action, where it has developed a sense that it is unitary, that there is a direction that exists between it and the world. The social environment for the child is identical with the physical, the meaning of things is direct as it has yet to learn the associations that come with the use of words.

The progression in the evolution of the sense of self is then an active internalization of the physical environment, and accommodation of experience into a constantly evolving consciousness. With the

internalization of the pattern of co-ordination of vocalization that is language, there comes available a further shading of meaning on the strictly physical, that we term social. This 'further shading' is the formation of associations between the names of things, and the development of a pattern of relationships between words taken in isolation from the things that they refer to. The reflexivism in language is a function of the process of abstraction, but not a process in the sense of a distinct ability of the mind, but as a description. A description that is really no more than a label to distinguish one part of the overall act of internalization from another so as to communicate an experience to another person.

Parallels between acquisition of natural language and acquisition of cognition

Parallels can be drawn between the relationship an individual has with their physical environment and that with their social environment. In this way the development of consciousness/thought by a process of 'active internalization' of the causal relationships seen in the form of environmental contingencies and causality in social relationships as understood in terms of emotion and personality (and enshrined in language) can be seen as analogous.

To reiterate: an infant learns 'the way the (physical) world works' by observation, or, more properly, by acts of perception. They learn how the social world works by learning the language of that society. It is the concepts communicated in the form of language , as well as (and, temporally speaking, primarily) the very nature of the form that comprise the child's developing self-awareness ('sense of self'). The process of language-learning is the process of the development of self-consciousness. Language is consciousness, but it must be differentiated from total

consciousness. It is, in a way, arbitrary to impose a simple dichotomy on consciousness, to say that thought has only two discernible forms rather than to see a continuum with two poles that are held to be archetypal, but within our conception of self-consciousness it is held that 'Identity' is discrete. That act or thought of which we are not 'consciously aware' is by definition 'unconscious'. There is only one personality with a number of different traits, as opposed to a range of reactions given environmental contingencies, a constant coherent 'mental' structure, rather than a developing person with a changing and contextually variant set of beliefs.This can be readily seen as a result of our observation of social reality, that it is only one person who acts, therefore there is only a single motivating 'mind', not a collection of attitudes.

To return to language learning, the function of language and its relationship to the idea of knowledge must be examined to see how it can serve in a mediating role between a person and their environment. To put it simply, language is the mind of a society, and with its learning a person constructs a unique self-consciousness. How can it be said it is unique, why isn't this simple social determinism? Because, the learning of anything is active, and, moreover, is done qualitatively in terms of personal capacities and consequently unique personal experience. That which we learn today depends on what we learned yesterday, context is as much an aspect of the past is it is of the present. The concept of capacities must not be confused however with 'innate mechanisms' or 'hard-wired' structures or any suggestion that consciousness develops teleologically as a process of maturation, proceeding to an inevitable end point. Rather, the capacities to learn depend upon previous experience. This can be pointed at as potentially circular, and simply a re-labelling or redefinition rather than a different viewpoint, but this I do not believe to be so. There is a difference

between 'innate' and 'capable', the former implying an ability that merely requires practice, the latter that it *can* be learned but does not yet exist, even in some quasi-embryonic form, nor will it necessarily exist in the future. But the question of capacities can be taken to a further and somewhat more abstract level, to ask whether a capacity can be other than innate, to ask whether we can acquire knowledge (in the action sense of knowledge) without pre-existing knowledge? Syntax without semantics is parody, not substance, the slate cannot be blank else it were no slate at all. However, the fact that it can be written on does not presuppose any particular sentence, neither will the words write themselves. Self-consciousness (the aware self) will not necessarily develop without experience, and, moreover, that the form of this consciousness will relate to the particular relationship that develops between the capacities of the person and the contingencies of the environment, specifically, the physical contingencies as represented in directly-observed physical causality and those represented within the body of socially-existent knowledge that is held in and comprised of, language.

How is it that a child can be said to "learn how the (physical) world works" by direct observation, as previously asserted without an innate source of references by which to 'partition experience'? The hinge point of the concept of learned consciousness is, as outlined previously, that an individual is in a dialectical (conversational) co-evolutionary relationship to their environment. To elaborate...

The fundamental assumption underlying communication is that both parties (assuming for the moment a simple dyad) share concepts in common, that the means of communication is supported by a common 'understanding'. In spoken language this is an abstraction into the mode of speech (oral production, aural reception), in perception more generally

this understanding is that perturbations (changes) in environmental contingencies (eg the optic array) are caused by 'things'. There is an implicit mapping between 'things' and the effect of their existence for us, commonly understood as changes in the dynamic structure of 'the senses'. The experience of perception for us, however, is not of changes in us, but of awareness 'inside' of things 'outside', that is, outside the 'self'.

Our language use perpetuates a dualist conception of reality, and its use requires us to make choices about how we will view the world without realising that there are in fact choices to be made. We (subject) look at /listen to/reach for things (object), not engaging in any reciprocal dialogue. We have ideas in our heads, in our minds, things are physical or mental, these concepts become enshrined in our everyday language use without our ever appreciating the philosophical position to which we are committing ourselves. But it is not to suggest that this is necessarily a 'bad' thing, or inaccurate, or misleading. Personal experiential reality (ie that of 'direct observation'), phenomenal existence in other words, is dualist. We, as objects to ourselves as well as subjects as ourselves, experience life in a disjoint manner, that is, the possession of a sense of identity implies a separation of self from 'something else', and hence the phenomenally real creation of subject and object. My reason for attempting to make this point is to establish the utility and relational nature of language as a product of interaction, so that even if the subject/object distinction can be described as an artefact of the nature of language as a 'reflection' of reality it is not then 'downgraded' as to its value. Language is a reflection of human social life, that is, of people in their interaction with their environments, and is an accurate reflection of that, rather than an objective deus ex machina (if I can use it in this way?), it is a social product, as well as a social creative force, and it is by this standard that it must be measured. It is not then

necessary to abandon the common-language framework to be able to discuss aspects of 'objective' (ie non-social) reality, if there is any such thing, so long as these biases and preconceptions and underlying assumptions are acknowledged, and a consensual understanding of the terms is reached. Even if psychology is no more than a series of language games, a translation of phenomena into the appropriate terminology/jargon, it does not degrade it as knowledge, if the language games are reflecting social reality. That is, if the purpose of psychology is to understand the nature of human experience then it is not incompatible with this aim to describe this nature at a level of explanation that is appropriate. To clarify, a description of social interaction between people in terms of conventional language is more informative than to reduce this description to an objective level of description, ie a neutral level such as the neuronal. And, of course, it can be argued that there is no level to which things can be reduced that does not involve language use, and hence presupposition and consequent biases and assumptions. Reductionism does not necessarily increase the explanatory value of a construct.

Chaos as a model for personal evolution

Fractals

Fractal geometry is the term used for the mathematical description of the physical characteristics of structures that show circularity, a term used by the mathematician Benoit Mandelbrot who is credited as the first to describe them. Circularity is meant in that the final shape of the structure is a reflection of the shape of the individual components, so that the whole is formed by a recursive sequence of repetitions of the parts that form it. To give a simple example, the final form of a snowflake is a reflection of the shape of the individual ice crystals that make it up.

Examination of any individual part of the snowflake reveals a shape that is identical to that of the entire flake. In a fractal form, serial repetition of a single base unit, with the addition of a degree of randomness, results in the formation of a larger structure that replicates the form of the base unit. The shape of mountains can be modelled by use (on computer) of successive iterations of the forms of component crystals. The dendritic patterns of alveolae and ferns fronds, the growth patterns of neurons show fractal nature, as does the curling of smoke from a cigarette in still air or turbulence in river currents.

The basis of a fractal is simple repetition plus uncertainty. Uncertainty is essential to a fractal, as fractals are a demonstration of the structure inherent in chaos.

Chaos theory in brief

Fractal forms are the physical manifestation of the abstract properties underlying chaos theory. In chaos theory, apparently complex structures are described by the use of small components interacting in a pseudorandom fashion. It's not true randomness, because the base units have a finite and predictable structure, but the randomness comes because of the stochastic nature of the formation of the final structure (if you can call it final). For example, weather. Weather shows an apparent regular cycle of changes, which it was imagined reflected an underlying consistent pattern that, when enough detailed records had been made, would allow for accurate long-term prediction. What has actually appeared is a picture of weather cycles as a chaotic jumble that defies prediction. As a chaotic system, the structure of the weather pattern at any one time depends on the structure at the time immediately preceding it, but no further back. The smaller the units of time one uses for retrospective analysis, and the shorter the overall period examined, the more there appears to be a

relationship between the current state and the previous. But as one goes further back, and one's scale broadens, the less dependent the present is on the past. Short-term predictions of chaotic systems can be made, but the uncertainty that is part of it means that the further one goes the less reliable one's predictions become.

The uncertainty in chaotic systems means that there is a progressive evolution in form, a gradual drift between states that has a general nature that comes from the recursive expression of the base unit, but a specific nature that is not predictable.

What form does this uncertainty take? In the growth of crystals the rule for its growth might be to follow a particular angle of growth, moving in a particular orientation according to the available bonds, following a pattern of successive lefts and rights, and where the randomness comes in is where one part of the crystal contacts another and has to go off at another angle. So the pattern that has been formed before influences the 'next generation', but not predictably. Continued interaction between the current expression of the rule and the effects of previous expressions brings a randomising effect to the growth so that at the level of the formation of individual crystals chaos reigns. But at the level of the organisation of the overall shape of the entire crystal there is order. Within a single feature of weather, for example a cloud (very fractal), there can be order on one level of analysis (eg there is a cloud) while there is chaos on another (the relationship between water or ice particles). This is one identifying feature of a fractal, the successive alteration from order to chaos with changes in the scale of analysis. As one more closely examines any fractal structure there is alternation between an apparent unitary nature and a fragmented nature. For example, a leaf is a unitary entity, but closer examination shows it as a collection of individual cells. Each cell is

unitary, but closer examination reveals that each cell is composed of bits. The base unit of the leaf is the cell, so examination ends there, but for fractals as an abstract entity there is one form, the Mandelbrot Set, where successive changes in scale of examination show an infinity of potential detail, where every unit (derived mathematically) can be revealed to expose an infinite succession of parts. The alternation between the unit and the part in chaotic systems results from the expression of the order inherent in the base unit, and the subsequent disorder inherent in the error variance in each successive generation.

The requirements for the creation of a chaotic system are the successive iteration of a base unit, plus a degree of error in how these units are arranged. Natural social systems, for example the biodynamics of species likes lemmings and locusts shows a chaotic growth pattern. Economic systems like the stock exchange show chaotic fluctuations.

What fractal geometry and chaotic systems demonstrate is how apparent complexity and order that appears to be controlled by a large underlying pattern of predictable relationships can be seen to evolve from the successive interactions of low-level units, and that apparent teleology can be described as no more than pseudo-random evolutionary drift due to uncertainty and instability.

Social reflexivity as chaotic self-organisation

Human society can be described as demonstrating a chaotic order. Society as a unit is composed of a host of individuals, is composed from the beliefs of these individuals about how society exists. The structure of society is then derived from the beliefs of individuals about the structure of society according to how they have been educated by society to believe the structure of society to be. The successive iteration in the chaotic formation

of society is human communication in the forms of social practice. The uncertainty and instability is derived from the fact that communication between individuals involves the translation into verbalisable concepts of personal experiences that are understood by metaphoric self-reference. Meaning is derived from personal experience, comprehension comes from personal context, so that the individuality of words has the capacity for their gradual evolution, and like a vast game of 'Chinese Whispers' cause words to shift in their uses to match current needs. Further, the roughness-of-fit of words to the untidy reality they purport to refer to leaves a great deal of possible error variance for fluctuation in structure.

"'When *I* use a word', Humpty Dumpty said in rather a scornful tone. 'it means just what I choose it to mean - neither more or less.'
'The question is,' said Alice, 'whether you *can* make words mean so many different things.'
'The question is,' said Humpty Dumpty, 'which is to be master - that's all.'"

Lewis Carroll, "Through the Looking Glass"

Here again is Marx, where social consciousness and Society reflect, and the imperfection of the reflection brings the tension and instability that is the spur to social evolution. If we extend the comparison of society as a chaotic system to socioeconomics, then Marx's predictions about the future course of social evolution suffered from the same problem as long-term weather forecasts, that stochastic systems are not readily amenable to any more than short-term analyses.

As part of its fractal legacy Society can be seen through increments of scale to consist of individuals, individuals to consist of beliefs, beliefs to consist of other beliefs and so on, the successive change from unit, to collection of part, to unit, where here the 'belief' is where further reduction becomes problematic. Each individual can then be seen as a fractal entity in its own right, constructing itself through the course of its life through successive

iterations of modified reflections of social experience, a personal historical process which is only predictable in a very general sense. Thus, self-reference is the iteration that, with the variance resulting from the tensions inherent in language-use, gives rise to the personal evolution of the social individual.

3 The Social Co-evolution of Ideological Dualism in Cognition and Emotion

A model for the unlearning of emotion

So where do we end up? The overall goal of this thesis, I discover at last, has been to produce a statement that I have already used several times so far, in a number of different ways. This statement is that the development of emotion can be synonymised with the development of cognition. This is somewhat reflexive, using the final outcome as a prior assumption. The end substantiates the means.

To clarify, if emotion is seen as as self-created (by the self it creates), that is, it develops as the personal sensation of the co-ordination of the action systems as they interact with the personal parameters of the physical world, then emotion is the awareness of one's self.

Emotion is fundamentally reflexive, it is the personal experience of self-examination in the process of recollection. Emotion is then an aspect of knowledge, and so of cognition, the personal experience of how the world works.

What is then required is a description of how the personal development of emotion is subsumed within the more general process of the development of individual reason.

The James/Lange Model

The James-Lange theory of emotion, is, very simply put, that we 'feel' an emotion first, unconsciously, then identify it consciously by an act of introspection.

"My theory is that...*the bodily changes follow directly the perception of the exciting fact, and that our feeling of the same changes as they occur* IS *the emotion.*" James (1890).

There is a 'primary' emotional reaction which we label. We are aware of our emotional state because, and how, it is happening. It is not that: "I cry because I am sad", but rather: "I know I am sad because I find myself crying". Feeling is primary. This idea requires a two-component description of the experience: the 'physical feeling' (qualia) of the 'affective' component; and the 'cognitive' component arising from the conscious introspection by the aware self of the current 'body state'. Perturbation first, identification, and thus emotional experience, second. This model appears intuitively to twist the experience of an emotion around, at least at a first reading, but introspection leads one to see that there <u>is</u> an apparent phenomenal disparity between onset of a 'feeling', and awareness of it.

James' ideas on the taxonomy of emotions had very definite materialist tones. It was not his opinion that emotions could be (or should be) differentiated on the basis of the feelings evoked, but rather that:

"The internal shadings of emotional feeling...merge endlessly into each other. Language has discriminated some of them, as hatred, antipathy, animosity, dislike, aversion, malice, spite, vengefulness, abhorrence, etc., etc.,; but in the dictionaries of synonyms we find these feelings distinguished more by their severally appropriate objective stimuli than by their conscious or subjective tone." James (1890).

James wanted a conceptualization of emotion that fitted with his idea of a scientific approach to analysis, looking beyond descriptions of each specific instance of emotional expression to find a single general cause (or set of causes) that could be used to explain emotion.

"The trouble with the emotions in psychology is that they are regarded too much as absolutely individual things. So long as they are set down as so many eternal and sacred psychic entities...all that *can* be done with them is reverently to catalogue their separate characters, points, and effects. But if we regard them as products of more general causes...[then]...the mere distinguishing and cataloguing becomes of subsidiary importance." James (1890).

James' theoretical view point removes emotions from being external forces to aspects of the functioning of individuals in the course of their lives. Emotions cease to be actions of the spirit and become actions of the body, moreover a body that has evolved to meet environmental needs. Further, emotions become intrinsically involved with the nature of the individual and their personality as it comes into being.

"If our hypothesis is true, it makes us realize more deeply than ever how much our mental life is knit up with our corporeal frame, in the strictest sense of the term. Rapture, love ambition, indignation and pride, considered as feelings, are fruits of the same soil with the grossest bodily sensations of pleasure and of pain." James (1890).

The 'same soil' as referred to above is the individual's life experiences, bodily perturbations occurring in association with cognitive events. The individual's emotional life comes into being through the incorporation of ones' own experience of physical 'reflex' responses, basic reactions that have their origins in the arisal of the human species through the processes of natural selection, into the self. This origin of reflex James (1890) refers to as: "...the principle of *revival in weakened form of reactions useful in more violent dealings with the object inspiring the emotion...*". For example: "So slight a symptom as the snarl or the sneer, the one-sided

uncovering of the upper teeth, is accounted for by Darwin as a survival from the time when our ancestors had large canines, and unfleshed them...for attack." James (1890).

This form of reasoning fits well with James' pragmatist leanings where the self is known by an observation of one's own behaviour, in activity in the social world. The pragmatic philosophy of Mead and James very much sees a self derived from, and defined by, social action and the standards of society mediated by linguistics to the conventions of social practice.

Emotional Development as Self-Organised

My own feeling about the James-Lange theory is that is that it is almost right, except that it has an inherent dualism in its two-component implications, and that rather than introspection or current self-analysis as the basis of the definition of emotion, I would prefer to see to see it as retrospection. It would be my wish to have a model of emotion that allows for self-modification and development. A model that sees emotion as developing itself as a product of interaction between the capacities of the individual as these change over time, and the potential of the environment to support action as these become realized by the developing character of the self.

It is my belief that emotions should be seen not as individual entities separate from the self, but as an artefact of linguistic convention. The differences between different emotions should be seen, as James also suggests, as a result of differential situational characteristics, task-demands, not as elaboration by experience of a core of genetically-predetermined 'givens'. These givens being physical attributes (reflexes) or action properties or reflections of qualities of the soul. Emotion is a label for a class of action. Action that is seen to be relevant to one's perception of self

as a social being. But this is not to say that people do not experience emotions. They do. As James (1890) puts it:

"*If we fancy some strong emotion, and then try to abstract from our consciousness of it all the feelings of its bodily symptoms, we find we have nothing left behind,* no 'mind stuff' out of which the emotion can be constituted, and that a cold and neutral state of intellectual perception remains."

But the phenomenal event of 'being in an emotional state' of one kind or another is not equivalent to that of say having a particular body temperature, or concentration of a particular protein or salt in the blood, or alteration in skin conductivity. An emotion is an experience of a conscious self-aware being, and, while it cannot be denied that it does involve a particular neurochemical/physiological/autonomic condition, it is more than that. It is not the physiological state that is the emotion, it is the conscious <u>experience</u> of that state. This experience includes all the associations and memories 'connected to' that state as well as awareness of the prevailing environmental contingencies. Emotions, moreover, do not occur <u>in</u> people. Nor do they occur <u>of</u> people. They occur <u>as</u> people are in reference to the world. This is not just heady mysticism or free-floating Hegelian Idealism, though it does owe a great debt to Hegel. It is not adequate to describe emotions in terms of bodily perturbations, or for that matter in terms of cognitive labelling. Emotions have their source in reference to real-world events. Events, however, that are perceived by a person, by a social individual.

"All knowledge whatever exists dissolved in the medium of feeling [sensibility]. Knowledge is an affair not only of objective relations, but of value for me. It bears an indescribable, absolutely personal relation to me, so that while you may know exactly the same that I know, my knowledge cannot possibly be your knowledge." Dewey, 1891.

It is my wish that a model of emotion be described that has a 'self-organising' capacity. But one model is not enough. Given that a self-

organising system modifies itself (definitively), then the final 'form' of the descriptive model will differ, must differ, from the form of the original. Any one model that attempts to describe an individual's emotional action at all stages of development must fail. Emotional form is not static, it is dynamic. It follows from this line of reasoning that attempts to describe the emotional life of infants using the adult model will be unsuccessful. It has been suggested that it is this attempt to apply the model that gives the apparent teleology to emotional development. It is the belief of the adult population that the emotional structure which they possess is the same, in embryo (ouch), in their children that produces this primal, and most pervasive, self-fulfilling prophecy.

"If the child is enabled to advance by being under the tutelage of an adult or a more competent peer, then the tutor or the abiding peer serves the learner as a vicarious form of consciousness until such a time as the learner is able to master his own action through his own consciousness and control." Jerome Bruner, 1985.

Any model which I might describe would have to be a description of function. A partial description, however, and not of a functional connection determined by a hard-wired linkage between parts of the brain and various relevant glands, but of a functional interrelationship formed out of needs, abilities and environmental opportunities afforded. It would be a model of a self-organising system that does not exist in the infant, even in the form of unrealized potentials, but develops into being in the adult as a function of social practice and thus of the self.

"The more strongly the senses themselves feel affected by the intensity of the inflow which comes to them, the less information they provide. On the other hand, if they are expected to yield a great deal of information, they must be affected moderately." Kant, 1798.

If one model of emotion is definitively inadequate, and the course of a person's emotional development is the book that each writes for

themselves, then what it would be best to describe would be the conditions by which, and in which, this system can come into being. It would be a theory of creation without a creator, a theory of phenomenal emotional evolution. All that you really require for emotions to develop is the possession of a memory, a memory that has entries from all the myriad aspects of perception including perception of the current state of the central nervous system. It must also be possible to compare the current status of the 'external world' as it is being experienced. Here we find a place for something like Kant's *a priori categories*. They are the functional dynamics of the nervous system. Really, there is only one a *priori*, the maintenance of the status quo. But, seemingly in contradiction to this, a status quo that changes. The status quo in this case is information rate, a range of tolerance that remains invariant over changing aspects of information. What counts as information develops with the individual's effectivities. A very Hegelian invariant indeed, each present state advancing by means of its own destruction and re-creation toward another state. But there is no final state. William James also questioned the need to conceptualise the physical substrate of emotion as existing in some form separate and unique within the nervous system:

"...it is even now certain that of two things concerning the emotions, one must be true. Either separate and special centres, affected to them alone, are their brain-seat, or else they correspond to processes occurring in the motor and sensory centres already assigned, or in other like them, not yet known...Supposing the cortex to contain parts, liable to be excited by changes in each special sense-organ, in each portion of the skin, in each muscle, each joint, and each viscus, and to contain absolutely nothing else, we still have a scheme capable of representing the process of the emotions. An object falls on a sense organ, affects a cortical part, and is perceived; or else the latter, excited inwardly, gives rise to an idea of the same object. Quick as a flash, the reflex currents pass down through their preordained channels, alter the condition of muscle, skin, and viscus; and these alterations, perceived, like the original object, in as many portions of the cortex, combine with it in consciousness and transform it from an object-simply-apprehended into an object-emotionally-felt. No new principles have to be invoked, nothing postulated beyond the ordinary reflex circuits,

and the local centres admitted in one shape or another by all to exist." James (1890).

James then sees no need to postulate neural networks specifically for the experience of emotion if it is possible to account for them within the existing explanatory framework for other forms of behaviour. I would depart from James' ideas only as to the nature of the basic elements of emotion behaviour, the reflexes. There is nothing within James' thesis that is at odds with a learning theory of emotion, other than the predeterminist principle inherent in the Darwinian concepts he quotes. I would wish to go further than James and question whether the basic nature of emotions lies in the potential provided by genetic inheritance.

Suppression of Emotions

Within the standard entity description of emotionalism the personal attempt to avoid the experience of a particular kind of feeling that for one reason or another is not desirable is described by the use of metaphors of containment. Conditions where the suppression of a particular emotional reaction are considered could be that the situation is inappropriate to the expression of a particular emotion, or that a particular emotion is socially proscribed, or that it is simply too personally disturbing. Within the entity description, an unwanted emotion is a thing separate and inaccessible to personal volition for its existence. It must be 'held in' until either the situation has changed so that it becomes appropriate for it to be 'let out' or that it has gone away of its own accord, or another stronger emotion has appeared that has 'shouldered it out of the way'. We "bottle up anger", "hold back the tears", "(be still my beating heart)", descriptions that utilise metaphors of physical restraint or pleas to the emotion itself that it not occur. Undesirable emotions are treated as unruly invaders, to be placated or subdued.

An alternative viewpoint is to look at emotional suppression as an act of choice. Rather than attempts to invoke unknown forces to hold wayward emotions in check we are engaging in a deliberate (if not immediately obvious) attempt to avoid the experience of one emotion by the selection of another from our behavioural repertoire. Firstly, by focusing on the personal experience of the undesired emotion we can shift attention away from its original source. If, however, the cause is unable to be avoided in this way, by focusing 'internally' then we can seek an alternative trigger 'externally' for another emotion that is less threatening or more socially acceptable. In either case the action is to set a chain of events in motion that, rather than holding one emotion down, cause the emotion itself to be altered. Rather than being a passive experiencer of emotions we are in fact active causes ourselves, by the deliberate seeking of particular features of either the external environment or of imagined features that have associations in memory that evoke more acceptable responses. But in either case it is not choosing one entity over another, it is choosing one behaviour over another. Emotional suppression is at basis avoiding one behaviour by deliberate concentration on the execution of another.

What we then see for the revised description of suppression as as active choice of behaviour is the general view of emotional change, the shifting from the experience of one emotion to another as the replacement of one emotion by another through the deliberate triggering of automatic routines (schema if you like) of recollection and arousal. Suppression is then a deliberate act towards experiencing an emotion of choice, rather than towards not having an emotional response at all, towards being blank or empty. As active seekers of information the one sure way of avoiding an unwanted response to a particular source of stimulation is to actively pursue the response to an alternative. The over-all emphasis then

is on the active pursuit of the experience of choice, rather than the more passive avoidance (if it is actually possible to passively avoid) or ignoring, of emotional experience altogether. We are capable taking control of what we will respond to, although avoiding the experience of a particular emotion may not always be the best thing to do in the long run.

This option of substituting one emotion experience for another stems from the underlying plasticity and adaptability of emotions as learned and learnable behaviours. Continued repeated substitution of one emotion response with another can, as with any well-practiced behaviour, become automatic, until the original response to the eliciting event ceases to have potency.

The Basis for Change in Emotionalism - Successive Replacement

The development of cognitive function, particularly to the point of the attainment of expertise, involves the creation of automatic and preconscious routines for the systematic co-ordination of personal state with environmental contingencies. As what I would term a 'successive replacement' hypothesis would suggest, continued experience of the same, or sufficiently similar (ie generalizable) events, results in the 'replay' of a successively lesser autonomic reaction. Each successive experience adds its own memoria to the context. To put it possibly more simply, 'associative pathways' (in network terminology) form (or rather, strengthen) between the memory of the currently-being-experienced event and non-arousing consequences. Thus for the emotions. To quote William James (1890) again:

"One final generality about the emotions remains to be noted: They blunt themselves by repetition more rapidly than any other sort of feeling. This is due not only to the general law of 'accommodation' to their stimulus ...but to the particular fact that the 'diffusive wave' of reflex effects tends always to become more narrow...The more we exercise ourselves at anything, the fewer muscles we employ; and just so, the oftener we meet

an object, the more definitely we think and behave about it; and the less is the organic perturbation to which it gives rise...This tendency to economy in the nerve paths through which our sensation and ideas discharge, is the basis of all growth in efficiency, readiness and skill. Where would the general, the surgeon, the presiding chairman be, if their nerve-currents kept running down into their viscera, instead of keeping up amid their convolutions?"

To use a 'snarly dog' example, if, after being frightened by a snarly dog [7], the next few snarly-type dogs one met did not savage you (assuming you would let one near you), then the memory associated with the perception of snarly dogs would gradually come to be 'replaced' by a less-arousing one. The degree to which this 'new' memory association would be less-arousing would be dependent on: a) the extent of the tolerance excess in the initial encounter; b) the number of subsequent non-threatening (or at least, less-threatening) encounters; c) the similarity between subsequent snarly dogs and the first, as well as the homogeneity (in personal experience) of snarly dogs as a class, or indeed of dogs as a class. This last point relates to the predictive value of the information involved, the prototypical or representative nature of the original snarly dog in the class of dogs, as to how generalizable the events and consequences would be. This is dependent on one's personal perceptual experience, as to how finely one would discriminate between them. What must also be considered is *the significance of making an error*. This relates to point a), if the initial experience was perceived as so threatening as to make the possibility of reoccurrence undesirable, then this would increase the likelihood of 'non-replacement', or disassociation. Also, the actions of consciousness in examining the event in retrospect, "going over it in one's mind" can contribute to the arousing qualities of the association by strengthening the 'pathway' if alternative associations are not not made. To use more normal terms, it is possible to reason away fear, to talk

---

[7]had one's information tolerances savagely exceeded, so to speak.

oneself into a calm state by deliberately accessing alternative memories and associations to counteract the anxiety. However, this may not be effective if the anxiety is such as to 'dominate' thought, and to result in arousal in the absence of the arousing event. This subsequent arousal becomes associated with the original event and increases the recalcitrance of the original association. To put it another way, lying awake at night telling oneself not to be scared of snarly dogs just reinforces the idea that snarly dogs are something to be scared of. But this is all minor detail really, the central idea remains that successive experiences with similar events that are non-arousing will result in a decrease in 'attensity' , which is synonymous with novelty.

Seek and Maintain - Emotionalism

When discussing human experience as I have done so far, the two terms 'cognition' and 'emotion' can almost be used interchangeably, where perhaps emotion is a 'special case of cognition' involving autonomic arousal in response to the recall of previous consequences of current actions given the choices available. 'Pure' cognition, and 'pure' emotion are hard to find.

A comparison can be readily made between the development of emotion by successive replacement and the initial formation of consciousness under the heuristic earlier referred to as 'seek and maintain'. Emotionalism, that is, an emotional response, is the end-product of a decision-making process. Where, in the learning of cognition the structure of co-ordination was hypothesised to be guided by the maintenance of tolerance limits of the sensory systems, thus also for emotion. What is involved in emotional response is a rational act performed to control one's environment to maintain it inside parameters of tolerance. For an infant, these parameters are literally the tolerance limits of the sensory

systems to their 'mechanical' limits of physiological adaptation. With experience the adaptation occurs to both these limits and to that which prior experience tells us will be the 'threats' to come. We respond to what we know will happen, and so respond to the future by reference to the past. Emotional response is behaviour to meet predicted stressors, or instances of anticipated change beyond what we feel is acceptable. That the stressors considered by an adult may transcend direct physical threat or pleasure, and may instead be socialized metaphors is irrelevant. We react to events in the ways available to us, and these methods we learn in childhood.

In emotional responding, as in other forms of action, the actions performed can be seen as aimed toward the goal of stabilising information flow. Within this, the 'feeling' component of emotion can be seen as the recall of previous action on a continuum of approach or avoidance, toward the result of increasing or decreasing the rate of flow. Whether a particular event increases or decreases this rate depends on how 'informative' it is, that is, how novel, or important.

This is a very low-level, mechanical description of emotion, and highly arguable. It is an attempt to neutralise a description of emotional response, and to side-step the potential reflexivity in emotional description, that is, talking in terms of personal goals, or motivations. What is sought is to describe the significance of emotional response, as action. To this end the use of the term 'self' has been used as sparingly as possible. 'Self' is one pole of a continuum of an act, and 'object' (or 'event') is the other. Neither is separable, it's dialectical once again, that is, reflexive. They are interdependent. Emotions are difficult to pin down definitively because the common usage of the term covers both the subjective feeling (eg angry) and the perceived cause (eg anger). Our metaphoric language, as

mentioned earlier, and its relationship to our cognitions, gives this duality and confusion. We seek an entity to match to the word so as to convey what we mean to ourselves and perhaps to others. We encapsulate the abstract in self-related language to ground it in comprehensible experience. A behavioural description of emotion (even within the reflexive confines of natural language) can aim to outline the act and its bare-bones significance. But it is not adequate as a description of the personal experience of emotion. That is not intended. It is one, alternate, viewpoint, but only one, and it suffers the same limitations as any other single viewpoint. A behavioural description can cover emotional response, even to the point of postulating hypotheses about feed-back relationships in cognition, but listing the dry mechanics of function does not adequately convey the complexity of personal experience.

Utilising the successive replacement model it is required that the action of accessing (or making a comparison in) memory is preconscious, but this is not to deny that autonomic reactions consistent with phenomenal 'feeling' responses to environmental contingencies, but occurring as a consequence of conscious thought, can occur. But here again the act of comparison is preconscious, though the effect may not be. In accessing memory we are consciously aware only of the intention to access and the consequences of that access. The *process* of access is opaque. Consciousness is constituted of the actions of preconsciousness, the parts of consciousness that form the whole, ever-changing according to the contingencies of the time, yet invariant around their relation to the personal self.

Identifying types of Emotion

To further describe the replacement model, there is a preconscious memory search involved in the initial stage of the encounter with the

event. If there is a 'match' (exact mechanism is irrelevant), then there will be, as part of the memory trace, an autonomic nervous system component associated with it. Dependent on the degree of change that the accessing of this component causes, this may enter into 'conscious awareness', and cue the consciousness as to the relative significance that this event (or similar events) had in the past. That is, what was the autonomic response resulting from the previous encounter ? This has obvious survival advantages and, moreover, can be seen as part of a possible precursor to a more complex evaluative system. As a basic mechanism for learning, previous action consequences are made available to consciousness, which can choose whether or not to repeat (or continue) this previous action, that is, an 'over-ride' option exists, so that one can choose an entirely different act should one so desire. To return more closely to emotion, conscious identification of the type of emotion that one is experiencing is decided by reference to memory, particularly to those memories that would be termed 'social' in nature, ie demonstrative of appropriate actions according to the moral order. This involves the selection of an appropriate verbal label for what is perceived as the current 'state' of 'mind'. One's experiences, however, are not merely limited to those experiences of which one has had direct phenomenal experience, but also those of others which we can share through the use of language, as earlier related in the use of metaphors and the social acquisition of cognitive patterns. Under this model then, emotions are the result of cognitive labelling of a 'feeling' according to a set of rules defined by an individual's experience in social interaction mediated by language. Here I must depart from the strong thesis of social constructionism (Armon-Jones, 1985), which says, simply put, that the cognitive label, even in the absence of the 'feeling' (qualia) is the essential for emotion. According to this opinion, an 'emotional attitude', or adherence to a social convention of self-perception

within a moral order is both necessary and sufficient to constitute an emotion. This I cannot agree with. I feel that a distinction must be drawn between an attitude, no matter how 'strongly held', and an emotion. An attitude alone is not sufficient, though it is necessary. it is the self-perception of the act of the assignment of the verbal label, where one places oneself on a social dimension of rectitude or conformity that is definitive of emotion, but, unaccompanied by evidence of physical reaction it becomes a mere abstraction, and not an emotion at all. As William James evocatively stated:

"What kind of emotion of fear would be left if the feeling neither of quickened heart-beats nor of shallow breathing, neither of trembling lips nor of weakened limbs, neither of goose flesh nor of visceral stirrings were present, it is quite impossible for me to think. Can one fancy the state of rage and picture no ebullution in the chest, no flushing of the face, no dilation of the nostrils, no clenching of the teeth, no impulse to vigorous action, but in their stead limp muscles, calm breathing, and a placid face?" James (1890).

Universals in Emotion

There is a strong body of belief in psychology that no matter how much you attempt to reduce emotion development to experience and away from genetics there is a point beyond which you cannot go, the region of the universals of expression. This belief is based on cross-cultural studies that purport to have demonstrated the universal nature of some facial expressions across cultures so separate and diverse that any similarities that are observable between them can be ascribed to a fundamental common origin in species formation. These universal expressions are further held to be innately linked to feelings of emotion (personal experience of emotion action) that are also 'universal' in nature. The basis for the belief in universal expression types for facial communication of emotion comes from cross-cultural studies where members of different

(non-interacting) races are asked to identify (from photographs) different expressions.

Ekman and Friesen 1971

In an oft-quoted paper, Ekman and Friesen (1971) looked at the concept of 'universals' in the relationship between facial expression and emotional content in an attempt to substantiate the belief that emotions are to some extent innate and unlearned.

To avoid the influence of popular culture, media transmission, or personal experience of stereotypes in the understanding of emotional expressions, they analysed the interpretation of facial expressions in 'preliterate' cultures in New Guinea. Ekman and Friesen's method was straight forward, and involved presenting subjects with a series of photographs that were held to represent a range of facial expressions that had been identified by people from other cultures as representing a range of basic emotions. These photographs were then categorised by the subjects according to the emotion that they considered that they corresponded to. In this particular case, where problems were encountered with the subjects remembering lists of emotion terms, as well as an uncertainty as to the validity of the translation, a modified method was used where the subjects were read a story involving a situation where the expression of a particular emotion was considered appropriate. The subjects then had to select a photograph that showed the expression they felt that the person in the story would have. The emotions that the experimenters chose to use were Happiness, Sadness, Anger, Surprise, Disgust, and Fear.

Briefly, the results showed a significant choice of what the experimenters held was an appropriate face for all the emotions except for choosing

between Fear and Surprise, where there was considerable confusion. As Ekman and Friesen put it:

"The results for both adults and children clearly support our hypothesis that particular facial behaviours are associated with particular emotions. With but one exception, the faces judged in literate cultures as showing particular emotions were comparably judged by people from a preliterate culture who had minimal opportunity to have learned to recognize uniquely Western facial expressions."

That there was no significant difference between the sexes, or over different age groups the experimenters held as supportive, given that women had even less contact with foreigners than the men, and thus less opportunity for experience at discriminating the emotional significance of their facial expressions. The similar results then would appear to reinforce the unimportance of previous cross-cultural contact. The inability of the subjects to distinguish successfully between expressions of Fear and Surprise is explained so:

"Experience within a culture, the kind of events which typically elicit particular emotions, may act to influence the inability to discriminate particular pairs of emotions. Fear faces may not have been distinguished from surprise faces, because in this culture fearful events are almost always surprising."

Here the experimenters are explaining the absence of a difference between two emotions, or more properly the lack of identity of each, as a result of a lack of practice. Because in their simple primitive-native-type existence in conditions of simple-minded primordial savagery they have not had the need to develop the sophistication in sensibility that the urbane Westerner has. But, we can assume, given time, the latent abilities to distinguish between these two emotions will emerge, and the savage will become civilized. All implications of patronage aside, the experimenters appear to be asking a lot of their results. On the one hand they are saying that the link between emotions (the simple ones, whatever they are), and

facial expression is innate, but they then explain this inability to demonstrate an innate understanding of the difference between expressions of Surprise and Fear as being a lack of experience. Counter to this, you could argue that in terms of basic components of emotion Surprise could be seen to exist as a subset (or derivative) of Fear. Hence there is no evolutionary reason why there should be an innate linkage. But, the determination as to what the basic components of emotion are (assume you ascribe to that point of view) is not clear-cut.

It is not my wish to deny the existence of observable patterns of consistency in action across cultures. What might be suggested however is that the explanation offered for this consistency might have its source in an origin other than genetic determinism as forging the base reaction types, the 'fundamental emotions', or 'emotion primitives' from which socialization constructs the refined forms of the emotionally mature adult. A dialectical explanation can be used to avoid the "either genetics or else society" approach that this form of dualist interpretation produces. To demonstrate, one of the universals proposed is that of smiling, which many observers relate as being present from birth onwards (although there is some difference of opinion as to age at onset). While it is conceded as possible that an infant can learn to smile differentially at different people, it is held that *the fact that it is a smile at all* is evidential of an innate link between a 'pleasurable experience' and the response of a smile. Is there any way in which it could be conceived that this particular action sequence (the smile) could be learned by an infant's experience of its world? What is there about the infant, its capacities, and the nature of the world with which it acts that could lead to the production of a smile response without any need to the recourse of such explanatory constructs as emotional motivation and innate reactions to particular types of stimuli (eg the faces of caregivers)?

An infant is an active seeker of information, in its actions it attempts to control its environment, to influence the pattern of stimulation available to it (given its capacities). In the flowing pattern of stimulation available it is sensitive to invariance, to structure, to repetitions, cycles. It learns by noting the consistencies in the pattern of stimulation, such as causal chains, event A is always followed by event B, so when A occurs expect B to happen soon after. This kind of causal reasoning can be applied to the physical structure, to the consistent patterns of colour light and shade, and orientations (directions of relative motion) that constitute real world entities. Of course, as mentioned before, hardwiring of minimum sensitivities (ie to line orientation, occlusion, figure and ground) would give an enormous head start to a perceiver and it is illogical to suggest that such things do not exist. It is however questionable to suggest that all such sensitivities are givens. The hardwiring of emotional responses is equally illogical, constraining as it would the potential for action and hence experience (more on that later). In the case of the newborn the range of possible actions is limited by the particular developmental stage the infant is at (excuse the tautology), and the range of actions that produce a change in environmental contingencies is even smaller. It can move its head only slightly, directing its gaze over a narrow angle as a consequence. It can wave its arms and legs around slightly, cry with great facility, and change the arrangement of the muscles on its face. There is the intention here that all action should be seen as exploratory where the outcome of the action is uncertain. This broadens the definition of exploration away from simple spatial information-gathering to information-gathering per se. 'Information' here being a change in the environmental contingencies. Gathering information is effecting change. The greatest potential source of information in an infant's environment is represented by the people

around it. This is not to suggest that there is a 'social environment' available for the infant, who does not possess a sense-of-self not having had enough experience (or even a completely-formed cortex) to construct one from the language-mediated experiences of others.

Of all the means in its limited behaviour repertoire with which an infant can act to effect change, the simplest and least demanding of energetic investment is alteration of the arrangement of the facial muscles. This is not to suggest that the initial use of the face to control the environment is intentional, and hence that the infant has some prior knowledge of the outcome. The action of the infant is not intentional at first, intention comes only with experience and hence expectation. They are rather simply acting in all ways that they are capable of, looking around, waving their arms, making random noises with their mouths, opening and closing their hands and other such actions that are the delight of keenly-watching adults. So why would any one of these actions have more of an effect than any other, and what is it about the effect that is significant enough in the life of the infant that it might wish to repeat it? The simple answer is 'scaffolding' (Bruner, 1985). It is not that the actions of the infant are in any way intentional, but that the 'keenly-observing adults' think that they are. It's not only the infant that is an active seeker of information, but the parents are as well. They hover over it looking for particular behaviours to label as intentional, and react whenever they observe an apparent manifestation of 'reason'. The place where we seek information most from others is the face. Parents, acting under the belief that the infant is as capable of intentional action as any other human being, are seeking evidence of the infant's belief state in its facial expression. And, unfailingly, they find it. And having found it, that is, successfully achieved bringing into existence the information they seek, they attempt

to repeat the act. What I am trying to describe is that there is a reciprocal attempt to gain information between parent and infant, the difference being that the parent's actions are more specifically goal-directed than are the infants. Really, the infants actions aren't goal-oriented at all, it is serendipitous that they happen to perform an act that has a significance for a watching adult, not intentional.

The face is the site of greatest effectiveness for the infant, but why a smile? It is an old saying that it takes more muscles to frown than it does to smile (while it was probably not originally intended to be used this way, it does demonstrate the fundamental economy of the act). The smile produces the greatest degree of change in the appearance of the face, the cheeks bulge, dimples may appear, skin at the corner of the eye wrinkles, the mouth often opens to display teeth (if present) and gums (if not), the inside of the mouth is displayed and in extreme cases the ears may also shift. So, for a very small out-lay of effort, a great degree of change is effected. It is in this effectiveness of the action that the reciprocal nature become evident, for it is not only the parent reacting to the action of the child but also the child to the adult. The sudden alteration in the pattern of stimulation available from the parent's face as they smile is very pronounced, and provides a great deal of novelty for it.

So an apparent intentionality and reason in behaviour can be redescribed as resulting not from conscious design or knowledge or pre-existing instinct or innate connection, but from the assumption that it should be there. In the act of seeking a particular form of information we can bring it into being. Projection of personal beliefs about the nature of the self as it exists in infancy shape our perceptions of what may well be semi-random and uncausally-linked events.

Affect as Effect

The attempt to reduce the wide range of emotions that have been described through the ages to a single set of basic common emotions is necessarily doomed to failure due to reliance on the assumption that it is possible there is such a thing as a single indivisible entity that is an Emotion. We say: " an emotion is..."; or " emotions are...", and attempt to locate within the brain or the nervous system, or in some combination of neurological and endocrinological activity some discrete, unique pattern of physical change that can be pointed to as representing the physical manifestation of a particular feeling. As stated earlier, we have the basis of our consciousness in language use, which exists as the product of our on-going recollection and interaction of ourselves and our environment, which is a recollection of bodies moving in space.(Jaynes, 1977). It is our experience that events have a material cause, one which can normally be traced to a single source. Our consciousness is based on our experiences, and we can have no experience of the immaterial. So do we seek to assign what we see as a discrete event, an emotion, to a discrete cause, neurophysiology. The reality however (or one version of it), is that emotions become discrete entities as we seek to describe them, they coalesce as, and <u>because</u>, we wish to find them. The apparently discrete nature of an emotion is an artefact of the tools which we bring to bear, specifically, the language that we use and its structure.

So how do we describe emotions if not in terms of neurological states? Why should we not say that a pattern of events is the physical co-factor to a given emotion? It is important here to clarify that when I am referring to a single emotion, or rather a basic emotion, I intend this to mean the case where a psychologist would say that there a given number of basic 'emotional units' that are innate, and are combined with the individual

life-experiences of a person to give rise to the vast range of sensibility that is emotional life. They might say for example that Anger, Joy and Sorrow are the basic components of all feeling, and that these are pre-linguistic, and can come to be combined with conscious linguistically-mediated experience to form the latter subtleties and self-related instances that that are labelled and become the socially (culturally) specific reactions or feelings that are more normally seen as being emotions. In opposition to this I would suggest that rather than characteristic 'low-level' physiological sets of interactions as the basis of the taxonomy of feelings, we should look instead to a basic set of needs, characteristic motivations common to all actions that define the necessary least behaviours of persons in their environments. Emotions can then be defined not in terms of similarities in patterns of physiology or simple organic response, but organised as effects arising from the inter-relationship between ability and need. They can be organised in terms of the purposes that they serve to the individual experiencing that emotion, their goal-relatedness. Fundamental to all situations are the options of certain actions, simplistically characterised as approach, avoid or ignore (as earlier outlined in the concept of seeking and maintaining an optimal level of stimulation in the development of infant consciousness). As the attempt is made to reduce the spectrum of emotions down to a few common irreducible factors, we are able to get closer to defining the basic elements of emotions in terms simple common irreducible needs that exist in our lives. The basic units of emotion are then not to be found in physiochemistry, but in human social life and its conduct.

The Social Embodiment of Cognition

One argument against the idea of language being learned is that of the speed with which it is acquired by children, the sudden spurt in

vocabulary after the second year, how can it be that something so incredibly difficult can be learned so fast? Firstly, we have no idea what an appropriate speed for acquiring a first language is. We only ever do it once (definitively), and while some do it faster than others we don't have any real standard for comparison. Secondly, I feel this argument can be turned back on itself and be used to ask with something so difficult as language, so diverse in its practice between races, how could it ever have evolved, and how could it be genetically transmitted and develop in such a relatively short space of time (geologically speaking) to the complex system it is now? Given a view point that holds the theory of the arisal of species through natural selection to be true, what are the selection pressures that have acted to bring about the development of language through gradual stages from the simple semiotics of calls that we might surmise comprised early language? How can differential selection pressure, or random mutation, produce changes in the way that language is used? If we follow selection theory and say that sexual shuffling of the genes throws up a useful variant that increases the chance for that individual to pass their genes on, how can a variation in genetic make-up produce a change in ability that allows *an individual,* not a group, to have an increased facility in language that will increase that individual's likelihood of reproducing and hence gradually increase the facility of the entire population? What particular gradual change is going to increase this reproductive probability? And is it likely that even with this increased facility a lone individual is going to be able to improve the communication of a group? Remember, language is inseparable from communication, which means that it is a function of a group, not one person. So it is a change in the group, that is required, not in any one person. So now we are talking about alterations to the structure of the interaction of the entire group, assuming that language does not arise in isolation. Language is a product of the

group dynamic. Changes in the nature of language are now becoming enshrined not in the genetic make-up of any individual, but in the way that the group acts as a whole. The reproductive success of an individual who leads a group existence is related to the success of the group in toto. The success of each member reflects the success of the group, thus survival, and reproductive success, becomes related to the ability of the group to be a group, which can be seen to relate to communication. Natural selection does not work on groups, it works on individuals. Social development is the reverse.

The genetic aspect of language development need not undergo any progression if the social aspect is capable of it. Certainly the changes in society can happen at a much greater rate than that for species! The essential underpinning of language is the ability to relate events that occur across modalities but are connected via what we would normally refer to as a causal link. Thus, sounds can evoke the memory of sights or touches or smells, and the converse also. Language then can be seen to require not a specific ability but a general aptitude. The refinement of language itself into complex forms of grammar comes not with physiological readjustment (genetic change) but the development of complexity in the course of need and usage. When the capacity to utilise language comes into being, then language will develop itself. Not as some separate quasi-mystical entity like the zeit geist, but as a refinement of custom and practice that is remembered. Language does not create itself, but language use sustains and extends it as its own expansion makes it possible for new forms to come into being. The more names we have for things, then we can begin to have names for classes of names. As there are options for names, then words become known through their relationship to other words, rather than to discrete physical things out side of a person and part

of their immediate physical experience. Thus experience progresses beyond the immediate and known to the possible and imagined. But I digress. The central point is that a genetic basis for knowledge of grammar is not essential, where that grammar can be learned in the process of use. If it is possible for a person to learn a grammatical form in the course of social interaction then it is not necessary for it to have a genetic instantiation. Considering the number of grammar variations, particularly in terms of word order, it can be seen as an advantage not to have this fixed, or else second-language learning would be even harder than it is.

Sociohistorical transmission is a viable alternative to simple genetics for the rapid development, communication, and storage of information of cultural significance. Within the framework of social practice and cultural organisation the embodiment of cognition remains both highly flexible and consistent. Its embodiment in on-going social life ensures that alterations to social knowledge and so the available 'social mind' retain validity to current situations. Consistent comes not from permanency of form, as from currency of application. Paradoxically, social knowledge, and language, only remain viably consistent if they remain consistently variable. As reality alters over time validity of knowledge only persists if language evolves with it.

The Unlearning of Cognition and Emotion

With a genetic pre-determination outlook on development there is a set time-frame and time-table for life. In contrast, development through a co-evolutionary perspective of what is known with what can be known, does not have to be thought of in this determinist way as the acquisition of knowledge to gain tactics toward the gaining of particular goals. Rather, all possibilities of organisation exist. The tabula rasa is not empty, it is totally full of space and opportunity. The initial state of cognition under this

perspective has a near-infinite set of possible end-states. Development and experience serve to eliminate the unsupportable, tracing a pattern of both possibility and impossibility simultaneously. Thus, cognitive development is not so much learning as unlearning. The infant attempts all, blind to what is actually possible. The development of self-knowledge is at the same time the development of other-knowledge. You discover what you can do, and what you are, by experiencing what you can't do and what you are not.

For emotion, this unlearning is represented by the gradual refinement through experience of the appropriate co-ordination of responses to situations. The apparent decrease in 'emotionality' which is popularly held to be a normal part of advancing age is a consequence of this maturation in outlook and discrimination rather than an inevitable result of having managed to stay alive for a particular period of time.

The use of the concept of a genetic time-table for life has implicit within it that the character of your existence is set. You will be a new-born for a set period of time, then infant, toddler, child, youth, adult as the clock runs on and the sands run out.

A final word on the Social-learning view-point on Emotion

What value is there to be gained from this? How is it of any use to almost define emotions out of existence as has been done, and to replace them with such vague neologisms as 'action systems' and such like? It is contained in the difference between the two statements: " People's emotions are caused by... "; and " People feel because... ". One speaks of disembodied entities, the other, of ordinary, personal, and potentially explicable reason. Emotions as abstractions outside of ourselves are timeless, while a person's act of feeling happens now. Hate, Anger, Love,

Disgust, Ecstasy, all have no beginning and no end, as they are concepts transcendent of any one individual. But I feel angry now, or I can love, then hate, then worship, then despise, all present feelings and current experiences. My despising is a an event with a cause, it is true only when I feel it, and is false when I feel something else. I cannot worship and hate at the same time, but Worship and Hate are eternal. They are romantic notions, descriptions of states that have become concretised in the necessities of the act of communication and brought to life, acquiring the status of cause over and above their true value as descriptions as effect. The very idea that we can worship and hate at the same time is a product of our need to understand by labelling, and in situations of ambiguity, where the labels don't quite fit and the subject of our attention has qualities (as we perceive) that should involve behaviour consistent with judgements both of 'worthy-of-worship' and 'worthy-of-hatred', the labels need redefinition to include this 'special case'. Here the concept of 'mixed emotions' comes into its own. We feel that we should feel something, some arousal, due to the current situation and its similarity to previous events we have encountered, yet the set boundaries overlap and merge. Our personal beliefs as to emotions being discrete entities demand that a discrete difference be drawn. That they should be similar is one thing, even composed from the same underlying set of possible emotion elements, but the need that they should be separate is quite another. This situation of arousal and indecisiveness becomes an emotion in its own right, as a handy catch-all that is tagged on when a final decision is not possible. When in doubt about the applicability of one or more labels in a given situation, then create a new one, part of the 'mixed' group, a hybrid, which if used by enough people enters the general lexicon and and a new feeling is born. But to return to practical value, is it of benefit to conceive of emotions in this way, as semi-arbitrary and flexible, rooted not in some

common genetic heritage but in the similar needs of people sharing the same environment with the same approximate physical abilities (effectivities if you like) and available vocabulary? Is there any advantage to this approach other than the possible dry satisfaction of dogmatic philosophers with a pedantic over-attention to details of syntax? Is it just redefinition, much as has been done so often before, to no real advancement? Perhaps so, but I do feel that there is merit in taking this approach. It gives, I feel, greater legitimacy and personal control to individual feelings. In a situation where feeling and experience are so closely related, the concepts of emotion and reason come closer together. Statements of personal feeling become suffixed with 'because', it's not Anger that you feel, rather that you feel angry. One is passive, the other active. you are in control of yourself, responsible, and have been really, all along. Placing the locus of control with the individual and giving them the ability to feel or not to feel (within reason), you point to the world they inhabit as providing cause in relation to themselves and their beliefs. You say that people feel because of how they are, and also because of the way the world is. It is rational to feel, because feeling has a cause, a focus and a history. It can be understood. Importantly, it is an on-going process, one that doesn't stop. Unwanted feelings don't have to be tolerated, who and how you are is not determined solely by your parentage, but can be modified, emotions can be replaced, associations can be short-circuited, new memories formed and preferable feelings evoked.

Emotion as the product of individual learning, as synonymous with personality and self, is emotion known and demystified. It exists in mindless people, unconscious, passionless, people who think and feel now but have no thoughts tomorrow as they had none yesterday.

In defence of the radical view-point

"A theory is the more impressive the greater the simplicity of its premises is, the more different kinds of things it relates, and the more extended is its area of applicability."

Einstein (1934)

Often, in articles and theses in Psychology that discuss highly divergent theoretical view-points, the virtues present in contrasting theories are pointed out, and a compromise situation is outlined which falls between and attempts to demonstrate how taking a radical, perhaps one-sided view of a position is often over-narrow and counter-productive. Generally speaking, a middle-of-the-road position is espoused as the reasonable response to obvious extremes of difference of opinion. In this way radical opinions and ideas are frowned upon, and there is the implication that the expression of an extreme opinion is perhaps naive, unscientific or even immature. The radical opinion is often seen as short-sighted or unimaginative, having insufficient scope to see the value in the opposing point(s) of view.

The radical opinions mentioned in this thesis have been the polarised opinions of radical behaviourism and cognitivism, differences historically fuelled by the sweeping statements of the antagonists and the apparent incompatibility of the underlying philosophical stances. The two positions are not really incompatible, rather they are representative of appropriately different approaches to divergent subject matter. If we look at memory for example, we can view it in two different ways. First, the structure of events in memory can be viewed as a reflection of the manner in which they are ordered by the processes of reason, processes that are prior to experience, what I would refer to as a simple cognitive account. Secondly, this structure can be seen as a reflection of how they are experienced personally, a reflection of external reality as and how it is experienced, a simple behavioural account. Alternatively, one can take another view

that, while not striving to be a compromise, escapes the dualism that underlies both of these approaches.

A simple cognitive account has it that there is a very ordered inside and a very disorderly outside. A simple behaviourist account would have it that there is an extremely ordered outside and a very simply ordered inside. Both make an inside/outside distinction, but place the source of order at different poles. To take a different view in terms of this example one can suggest that the manner in which events are related in memory is a consequence of the process of reason, but that this process of reason comes into being as a result of a personal learning process (as outlined earlier) which creates an understanding of how events are related in the world. Thus, a simple cognitive account of categorisation can have its roots in a simple behaviourist account of the arisal of reason. This is a possible reconciliation of the dualism that does not require the rejection or dilution of either radical view. The views are radical, but not necessarily mutually exclusive. Simple behaviourism can be used to describe the process whereby the observed/experienced causality in one's environment is internalized into automatic procedures; simple cognitivism can be used to describe how the internalized causality is transformed by the subjectivity of personal experience into the characteristic responses that comprise personality. Simple behaviourism can be defined as the process of labelling only discrete, overt, external action as behaviour. Simple cognitivism then is the labelling of covert, inferred, internal action as behaviour. The province of study of both is action. But rather than being competing paradigms they are complementary methods of analysis, overlapping, interacting, yet polarised. Rather than rivals fighting for the right to claim the high ground of proof they are differential investigative techniques useful for different subject areas. The question then is how we

could alter our conceptions of the relationship between these two to achieve a more constructive harmony of ideas and unity of purpose.

As to what I would suggest, in light of what I have found in the course of writing this thesis, should be changed, is, quite simply put, nothing. I have as yet to be totally convinced that harmony is all that constructive.

Tension, disagreement, and division are healthy and conducive to progress. What a radical statement does for us is to play theoretical devil's advocate. When our ideas are strongly challenged by a contrary opinion we are forced to examine our assumptions and either prove them right to our own satisfaction, or to modify. Violence of argument, while having the potential to produce unwanted alienation, can also give energy to creation. Compromise has the effect of quieting argument for a time, but it is questionable as to whether this is a desirable outcome, or even a practical goal.

On a very basic level, any time an opinion is put forward it will always be possible to formulate another opinion that is in direct opposition to it on any and all points. For any hypothesis, there is always a contrary one. On this basis, all ideas can be radical ideas, depending on where on the continuum you stand, moreover, standing on the continuum of opinion at all makes your idea radical. Any statement of ideas calls its opposite into existence (to echo Hegel).

There are two ways (at least) of seeing the virtue of the radical. The first is the trans-historical: what is radical today is often mainstream tomorrow (eg Galileo, Einstein), and what today is mainstream may tomorrow be seen as the rankest heresy (eg Newton, Watson). Opinions shift with new information that causes the embracing or rejecting of a theory. The second obvious virtue is in fertility of ideas: the radical is such because of its distance from the mainstream. Because knowledge is referential (if one

accepts that for the moment), an opinion radical to our own serves as a source of reflection and definition on where we currently stand.

Neither of these two points is in itself particularly earth-shattering, the shifting of the pendulum of opinion, and the acceptance of ideas for which the time is right and society has advanced to meet them has almost the status of a cliche. What I am pointing toward is that rational discourse and good-natured cooperation have very seldom been the source of scientific advance. The middle-of-the-road, the compromise position, the average, is never the stimulus for leaps forward. Definitively, new ideas come from unpredictable sources. Psychology is said to suffer from a lack of a coherent paradigm, a unified model of how it works that describes how psychological investigation should be done and gives fundamental units of reference that allow transference of concepts between the different sub-disciplines. There is no atomic theory in psychology, no quanta that underlie it and to which it can be ultimately reduced and comparisons made. But is this a problem, or an advantage? Psychology is not like the natural sciences. There, there are levels of scale that can be drawn that allow blunt division into fields of investigation. But Psychology is immeasurably diverse and vastly diffuse. Physics may be said to underlie Chemistry which underlies Biology, but there is no such simple hierarchy that can be enforced on Psychology. No one aspect of Psychology can really be separated from any other, and it's not just a matter of interdependence so much as indivisibility. The aspect of Psychology that one is studying at any one time is as much a reflection of the chosen tools as it is of the subject matter. It's a question of how fine or coarse a level one chooses to analyse at. An experiment in Social Psychology is also one in Perception, Cognition, Emotion, Psychophysics and all other aspects of Psychology because people's personalities are not so readily separable as to yield themselves up for such disparate examination. Against this however, the

individual often seems implicitly assumed to be a behaviour-producing machine, and in the experimental situation all individual differences except the one chosen for study are held stable, or so it is intended. Randomization of all but the one chosen factor keeps the experiment on line and bestows validity. What kind of experiment it is depends ultimately on what the experimenter chooses to label it, and what is seen as appropriate measures as a consequence of the experimental goals.

Disunity of purpose means the proliferation of ideas, which the selection pressures of the scholar's environment will winnow down.

A paradigm would represent stagnation for Psychology. The final paradigm for Psychology, the operational metaphor to guide research, would be a description of the human mind. Psychology's paradigm is its goal, it is the field that describes itself. That Psychology should strive for a paradigm is appropriate, that it should achieve it is paradoxical. Anything that is put forward as the one true method of description in Psychology would, by its very existence, be false.

There can be no one description of the mind that is correct because the mind is the total of any one individual, it is the product of their past and present. A person's mind is as dynamic and undetermined as they are. The mind is their experience, what it was, what it is, and there is only ever a probabilistic prediction of behaviour possible, the norm is all that can can ever be known, within the bounds of statistical probability. A paradigm of the human mind would be at best a generalized picture, an averaged analogy that was no-one in particular. Being such, it would never fit anyone, could never with any certainty be said to be a description of anyone. The trajectory of Psychology towards its goal is asymptotic.

Emotion defined

As regards the study of emotion in Psychology it is arguably the most problematic of all, defying description. The definition of emotion will never be precise, and, I feel, will never be resolved to anyone's satisfaction. Emotion represents the personal understanding and expression of personality. As touched on in the Introduction, how a person acts in those ways socially understood as being 'emotional' are definitive of what kind of person one is. Social status gives a general-level stereotype-based expectation of personality-type, but precise knowledge of individualism comes only with information about a person's emotional responses, not just the abstract attitudes, but their passionate, firmly-held beliefs (if any).

To define Emotion, if seen as an aspect of the social face of personality, is like quick-silver sought with a pair of tweezers. Emotion represents the apex of behaviour, comes direct from the beliefs closest to what a person is really like. Emotion is then so all-enclosing and so pervasive as a concept, both defined by the beliefs of the person who acts and the society who judges (and their beliefs about each other) that no single definition or approach will ever be adequate for everyone. Again, the ill-fit of language to reality introduces variance and allows (if not makes inevitable) disagreement. A person defining emotion is defining emotion for themselves, reflecting back onto themselves, imposing a grid of experience and belief that cuts up human nature and then tries to show how it fits back together. But, where any part is removed from the whole, it, by that act, is coalesced into a unit that has attributes independent of the parent whole and which the parent does not share. The strictly biological, the instinctive, the learned, the social, as each different but interconnected viewpoint is taken it can only be imperfectly reconciled with the others. Indeed, taking a particular viewpoint brings the others into existence.

So then, if you attempt to define emotion it is not emotion that you are defining, but something else that you have created. By naming it you

cause it to be, and limit it by its being fitted to meet your capacities for explanation.

"If you can describe it, then it's not the Tao"
Lao Tzu

The study of emotion is the study of self, and as such is an endeavour to peg out the dimensions of the individual, to provide a synthesis of psychological explanations that is as good as we can do. We can only ever get a good approximation of what it means to be a person, and this approximation is to be found by using as diverse a set of tools of explanation and enquiry as we can arrange. To this end we should pursue a diversity of approaches, and take odd angles and strange routes.

Unorthodoxy and the adoption of radical viewpoints diversifies not just the methods of analysis but the subject of analysis as well. If we are to seek an understanding of human emotion that is appropriate across as wide a range of human experience as possible so as to be as true as we can, then our subject matter should be whatever is relevant at all to how people see themselves, or come to an understanding of themselves as social. So, not only standard experimentation, but literature analysis and other forms of sociological study. To understand emotion we need to see what emotion is for, to see not just the 'what' of personality but the 'why'. We need to see how people view their emotional lives and what personal value particular ways of dividing up the self into separate emotions has. We need to ask 'what is it for ?'

Within this thesis I have avoided seeking out facts or results of the experiments of others as much as possible. I have not been seeking a way to ultimate truth but instead have speculated on how to more closely approximate the right questions to ask. I have tried to avoid a detailed understanding of emotion but have instead sought the simplest

explanation possible. I have finally come to the conclusion that the reason why emotion remains so difficult to explain is because it is so straightforward. It is so simple in its nature that it defies our attempts to explain it in anything so complex as language, and for language to convey it, it must be padded out with pieces borrowed from the self-perception of the person attempting the explanation. There is nothing all that complex about emotion, which is probably why we will we will never be able to understand it.

"What we call 'I' is just a swinging door which moves when we inhale and when we exhale."

Shunryu Suzuki

References

Armon-Jones, C., (1985). "The thesis of social constructionism". in R. Harre, (1986) "The social construction of emotions". UK: Blackwell

Baldwin, J.D., (1985). "Social behaviourism on emotions: Mead and modern behaviorism compared". Symbolic Interaction, Vol 8, 2, 263-289.

Bidell,T., (1988). "Vygotsky, Piaget and the dialectic of development". Human Development, Vol 31, 329-348.

Bronowski, J., (1974). "The ascent of man". London: BBC.

Bruner, J., (1985). "Vygotsky: a historical and conceptual perspective" in J. Wertsch (Ed) (1985) "Culture, communication, and cognition: vygotskian perspectives". USA: Cambridge University Press.

Carroll, L., (1898). "Through the looking glass and what Alice found there". London: MacMillan.

Chomsky, N., (1987). "On the nature, use and acquisition of language", in Lycan, W.G., (1990). "Mind and cognition: a reader", (Ed). Oxford: Basil Blackwell.

Cooley, C.H., (1964). "Human nature and the social order", in L.A. Coser (1977) "Masters of psychological thought: ideas in historical and social context", (2nd ed). New York: Harcourt Brace Jovanovich.

Coser, L.A., (1977). "Masters of psychological thought: ideas in historical and social context", (2nd ed). New York: Harcourt Brace Jovanovich.

Cushman, P., (1990). "Why the self is empty: toward a historically situated psychology", American Psychologist, 45, 5, 599-611.

Damon, W. A., & Hart, D., (1988). "Self-understanding in childhood and adolescence". USA: Cambridge Press.

De La Mettrie, J., (1748/1912). "Man a machine". USA: Paquin.

Dewey, J., (1891). "Psychology". 3rd Ed. USA: Harper and Brothers.

Dixon, N.F., (1981). "Preconscious processing". New York: Wiley.

Einstein, A. (1936). "The world as I see it", in P.A. Schilp (ed) (1952) "Albert Einstein: Philosopher-scientist" 2nd ed. UK: Cambridge university Press.

Einstein, A., (1934). "Autobiographical notes", in J. Bronowski (1974) "The ascent of man". London: BBC.

Ekman, P., & Friesen, W.V., (1971). "Constants across cultures in the face of emotion", Journal of personality and social psychology, 17, 2, 124-129.

Evans, D.A., (1988). "Strange bedfellows: deafness, language, and the sociology of knowledge". Symbolic Interaction, Vol 11, 2, 235-255.

Gibson, E.J., (1988). "Exploratory behaviour in the development of perceiving, acting, and the acquiring of knowledge". Annual Review of Psychology, 39, 1-41.

Gibson,J.J., (1979). "The ecological approach to visual perception". Boston: Houghton Mifflin.

Goff, T. W., (1980). "Marx and Mead: contributions to a sociology of knowledge". GB: Redwood Burn.

Harre, R., (1986). "The social construction of emotions". UK: Blackwell

Hebb, D.O., Lambert, W.E., & Tucker, G.R., (1971). "Language, thought and experience". Modern Language Journal, 55, 212-222.

Holowinsky, I.Z., (1988). "Vygotsky and the history of Pedology". School Psychology International, 9, 123-128.

Hyppolite, J., (1969). "Studies on Marx and Hegel". UK: Heinemann.

James,W., (1890). "Principles of psychology". Volume 2. New York: Holt.

Jaynes, J, (1977). "The origin of consciousness in the breakdown of the bicameral mind". Boston: Houghton Mifflin.

Kant, E,. (1798/1978). "Anthropology from a pragmatic point of view". USA: Southern Illinois University Press.

Kolenda, K., (1974). "Philosophy's journey: a historical introduction". USA: Addison-Wesley.

Kozulin, A., (1986). "The concept of activity in soviet psychology", American Psychologist, 41, 3, 264-274.

Lakoff, G., (1987). "Women, fire, and dangerous things: what categories reveal about the mind". USA: University of Chicago Press.

Lao Tzu, "Tao te ching", D.C. Lau (1963 translation), The Penguin Classics. Harmondsworth: Penguin.

Leahey, T.H., (1987). "A history of psychology: main currents in psychological thought", (2nd ed). Englewood Cliffs, N.J.: Prentice Hall.

Lee, B., (1982). "Cognitive development and the self" in J.M. Broughton & D.J. Freeman-Moir (ed's), (1982) "The cognitive developmental psychology of James Mark Baldwin", chapter 7. USA: Ablex.

Lockwood, M., (1989). "Mind, brain and the quantum". GB: Blackwell.

Lombardo, T.J., (1987). "The reciprocity of perceiver and environment: the evolution of James J. Gibson's ecological psychology". USA: Erlbaum.

Lycan, W.G., (1990). "Mind and cognition: a reader", (Ed). Oxford: Basil Blackwell.

Mandler, G., (1984). "Mind and body: psychology of emotion and stress". USA: Norton.

Marcuse, H., (1941). "Reason and revolution", 2nd Ed. London: Unwin.

Marx, K., (1859) in W.A. Suchting, (1986). "Marx and philosophy: three studies". New York: New York University press.

Marx, K., (1849). "The communist manifesto", in Rius (Pseud) (1978) "Marx for beginners". London: Beginner's Books.

Maurer, D., & Maurer, C., (1988). "The world of the newborn". New York: Basic Books.

Mead, G., (1965) in J.D. Baldwin, (1985). "Social behaviourism on emotions: Mead and modern behaviorism compared". Symbolic Interaction, Vol 8, 2, 263-289.

Mead, G.H., (1956). "George Herbert Mead: on social psychology", Anselm Strauss (Ed). USA: University of Chicago Press.

Mead, G.h., (1934) in J.D. Baldwin, (1985). "Social behaviourism on emotions: Mead and modern behaviorism compared". Symbolic Interaction, Vol 8, 2, 263-289.

Popper, K.R., (1945). "The open society and its enemies. Volume 2. The high tide of prophecy: Hegel, Marx, and the aftermath". UK: Routledge.

Rahmani, L., (1973). "Soviet psychology: philosophical, theoretical, and experimental issues". New York: International Universities Press.

Rius (Pseud), (1978). "Marx for beginners". London: Beginner's Books.

Rosch, E., & Lloyd, B.B. (ed's), (1978). "Cognition and categorization" in G. Lakoff (1987) "Women, fire, and dangerous things: what categories reveal about the mind". USA: University of Chicago Press.

Shaw, G.B., (1948). "Man and superman: a comedy and a philosophy". Middlessex: Penguin.

Suchting, W.A., (1986). "Marx and philosophy: three studies". New York: New York University press.

Suzuki, S., (1970). "Zen mind, beginner's mind". T. Dixon (ed). New York: Weatherhill.

Valsiner, J. & Van Der Veer,R. (1989). "On the social nature of human cognition: an analysis of the shared intellectual roots of George Herbert Mead and Lev Vygotsky". Journal for the Theory of Social Behaviour, Vol 18, 1, 117-136.

Valsiner, J., (1988). "Developmental psychology in the soviet union". Bloomington: Indiana University Press.

Vygotsky, L.S., (1978). "Mind in society: the development of higher psychological processes". Harvard: USA.

Vygotsky, L.S., (1981) "The genesis of higher mental functions" in J. Wertsch (Ed) (1985) "Culture, communication, and cognition: vygotskian perspectives", . USA: Cambridge University Press.

Vygotsky, L.S., (1983) "Sobranie sochinenii. Volume 5. Problemy razvitia psikhiki." in Valsiner,J. & Van Der Veer,R. (1989). "On the social nature of human cognition: an analysis of the shared intellectual roots of George Herbert Mead and Lev Vygotsky". Journal for the Theory of Social Behaviour, Vol 18, 1, 117-136.

Vygotsky, L.S., (1984a) "Sobranie sochinenii. Volume 4. Detskaia psikhologia" in J. Valsiner & R. Van Der Veer (1989) "On the social nature of human cognition: an analysis of the shared intellectual roots of George Herbert Mead and Lev Vygotsky". Journal for the Theory of Social Behaviour, Vol 18, 1, 117-136.

Watson, J.B., (1924). "Talking and thinking", ch. 10 of "Behaviorism", in W.G. Lycan (1990) "Mind and cognition: a reader", (Ed). Oxford: Basil Blackwell.

Wertsch, J., (1985). "Culture, communication, and cognition: vygotskian perspectives", (Ed). USA: Cambridge University Press.

Whorff, B.L. "Language, thought, and reality". 1956.USA: MIT.

Winterson, J., (1990). "Sexing the cherry". GB: Vintage.